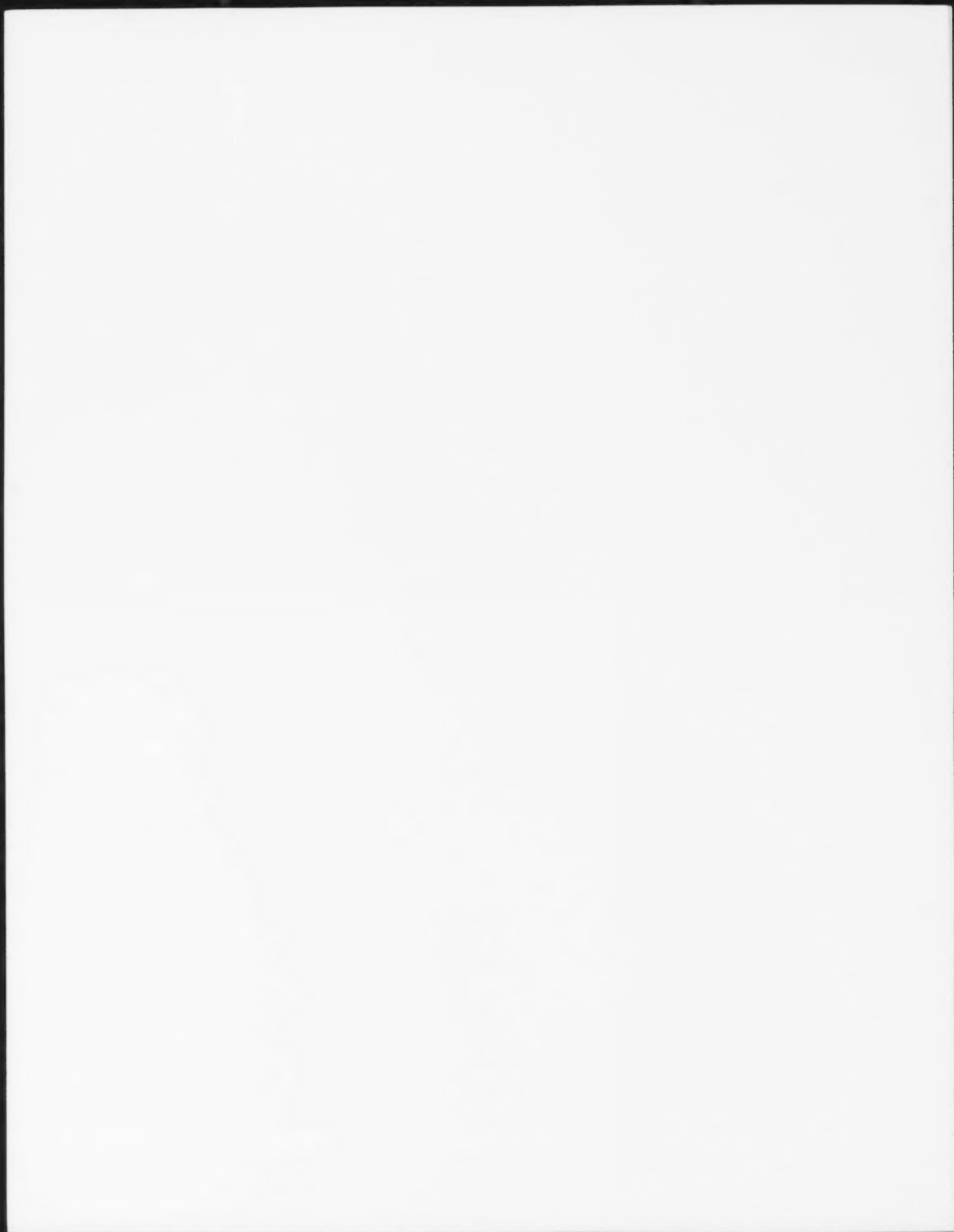


Local Government Resource Handbook




NOVASCOTIA
Service Nova Scotia
and Municipal Relations

Volume 2



Local Government Resource Handbook

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Model Land Use By-Law

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Introduction

*This Model Bylaw is intended to be a guideline for drafting a Land Use Bylaw (LUB). It is a 'how to' document written for municipal planners and those interested in planning such as Councils, Planning Advisory Committees and the public. Provisions have been set out to illustrate the variety of options available within the framework of the **Municipal Government Act** (hereafter called the Act). The provisions set out are not mandatory or exhaustive. Not all of the zones or zone provisions will be appropriate for all municipalities as each planning area is unique. An attempt has also been made to say things in 'plain English'. In most instances numbers or standards are not included. Each municipality will make its own decisions on these matters. Where numbers are used, they are in the metric measurement system.*

Explanatory comments are provided, where appropriate, immediately after the LUB provision. They are printed in italics and enclosed in a shaded box. They indicate things such as whether the provision requires supporting policy in the municipal planning strategy, other options or ways of dealing with the same subject, more simply worded provisions, and any planning implications that may result from the provision. They reflect the current thinking on planning issues in light of common planning practice or Utility and Review Board or Court decisions. The rationale for each zone is also set out.

Everything printed in italics and enclosed in a box is information for the reader and not intended to be placed in the actual LUB.

The principal enabling authority for the preparation and enforcement of a LUB is found in sections 219 and 220 of the Act. Section 219 clearly links a municipal planning strategy with a LUB. It provides that:

- ▶ *provisions in a municipal planning strategy or a strategy amendment that deal with 'regulating land use and development' must be implemented by a LUB;*
- ▶ *the LUB implementing provisions must be adopted at the same time as the municipal planning strategy or strategy amendment; and,*
- ▶ *once a municipality has adopted a LUB it subsequently can be amended 'to carry out the intent of the municipal planning strategy'. A LUB cannot be amended unless the amendment carries out the intent of the strategy.*

Sections 220(1) and (2) of the Act require that a LUB establish zones, lists permitted or prohibited uses for each, and provide for any other matters required to implement a strategy. Section 220(3) establishes that total prohibition of development is limited to only those situations identified in the Act. Sections 220(4) and (5) stipulate the things that can be put into a LUB with the items listed in subsection (5) requiring specific policy support in the municipal planning strategy in order for them to be regulated in the LUB.

There are some basic do's and don't's that have been established over time through court decisions. They can be summarized as follows:

- ▶ *when the Act says something may be regulated it does not include the power to prohibit unless expressly stated;*
- ▶ *the term 'regulate' does not mean 'require'; and,*
- ▶ *minimum and maximum standards may only be set out in a LUB where clearly enabled by the Act.*

The question that should be asked when drafting a LUB provision is 'Where in the Act does it say that Council can do such a thing?'.

The number of zones and the provisions contained within them should reflect the level of land use control necessary and desired by the municipality. The guidance for this level of control comes from the overall planning direction set out in the municipal planning strategy.

A LUB should be written in plain English. Where possible detailed provisions should be explained using figures, charts and tables.

Municipalities have a great deal of flexibility in the way they handle land use issues. This Model Bylaw is prepared using the assumption that the simplest approach is the best. It is designed to be easy to understand, interpret and administer.

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Introduction

How to Use This Bylaw

To find information about uses permitted on a lot and the requirements for a development permit refer to:

- ▶ **Part 2 Administration** and **Part 4 Interpretation** for general information;
- ▶ the **Zoning Map** (Schedule 'A' of this Bylaw). Once the applicable zone is known, use the zone heading found in the table of contents of this Bylaw to locate the zone requirements;
- ▶ **Part 6 General Provisions for All Zones**. For example, look for driveway access requirements, loading space requirements, and parking requirements;
- ▶ if applicable, look in the **General Provisions for All Residential Zones** and the **General Provisions for All Commercial Zones** as well; and,
- ▶ **Part 35 Definitions** to see if any special definitions apply to the development on the lot.

Part 1 Title and Purpose

- 1.1 This Bylaw shall be known as the Land Use Bylaw for (name municipality or planning area) and shall apply to all lands within the municipal boundaries (or planning area).
- 1.2 The purpose of this Bylaw is:
- (i) to carry out the land use development policies found in the Municipal Planning Strategy; and,
 - (ii) to establish a fair and systematic means of development control for the municipality.

Including a 'Purpose' here is not essential. It was put into this model because it establishes a clear link to the municipal planning strategy. In addition, it helps in interpreting the various sections of the Bylaw.

Part 2

Administration

This part of the LUB is essential in that it is here where the applicant finds out who is responsible for the bylaw and what they have to do to proceed with the development. This part is sometimes set out at the end of the Bylaw.

This part does not include a section dealing with penalties. It is optional because penalties are set out in the Act and are applicable whether or not they are mentioned in the LUB (S. 266).

Summary offence tickets are another penalty option.

Administration

2.1 The Development Officer shall administer this Bylaw.

Development Permit

- 2.2 (a) Unless otherwise stated in this Bylaw, no person shall undertake a development on a lot within (name municipality or planning area) without first obtaining a development permit from the Development Officer.
- (b) The Development Officer shall only issue a development permit in conformance with this Bylaw, a site plan approved in conformance with this Bylaw, or an approved development agreement, except where a variance is granted or in the case of a nonconforming use or structure, in which case a permit shall be granted in conformance with the Act.
- (c) A development permit shall expire within 12 months from the date issued if the development has not commenced.
- (d) The Development Officer may revoke a development permit where information provided on the application is found to be inaccurate.

No Development Permit Required

- 2.3 Unless otherwise specified, no development permit shall be required for:
- (i) a development that involves the interior or exterior renovation of a building that will not change the shape of the building or increase its volume, will not add more dwelling units, or will not involve a change in use of the building;
 - (ii) a fence or wall that does not exceed 2 m. in height;
 - (iii) a sign less than 0.5 square m. in area where signs are permitted (see Part 7);
 - (iv) an accessory building less than 20 square m. in area;
 - (v) a temporary use subject to Section 6.24; and

- (vi) public and private utilities located within the street right-of-way;

although the applicable requirements of this bylaw must still be met.

The Act clearly enables a municipality to set out in its LUB 'uses for which a development permit is not required' [S. 244(2)].

The 20 square metres referred to in clause (iv) is the size threshold beyond which a building permit would be required.

Even though the development of some uses may not require a development permit the development is still required to be in compliance with the LUB. A problem of noncompliance may result but many of the exemptions do not have applicable requirements anyway.

Application for a Development Permit

- 2.4 (a) Every application for a development permit shall be accompanied by a sketch or plan, in duplicate, drawn to an appropriate scale and showing:
- (i) the shape and dimensions of the lot to be used;
 - (ii) the distance from the lot boundaries, dimension, and height of the building or structure proposed to be erected;
 - (iii) the distance from the lot boundaries and size of every building or structure already erected on the lot and the general location of the buildings on abutting lots;
 - (iv) the proposed location and dimension of any parking space, loading space, driveway, and landscaped area;
 - (v) the proposed use of the lot and any building or structure; and,
 - (vi) any other information the Development Officer deems necessary to determine whether or not the proposed development conforms to the requirements of this Bylaw.
- (b) Where the Development Officer is unable to determine whether the proposed development conforms to this Bylaw, the Development Officer may require that the plans submitted under clause (a) be based upon a survey certified and stamped by a Nova Scotia Land Surveyor.

This model does not include a sample application form. If a municipality has prepared one it should be included as a schedule to this Bylaw and referred to in this section.

Signature of Applicant

- 2.5 The application for a development permit shall be signed by the registered owner of the lot or by the owner's agent duly authorized in writing to act for the owner.

Getting the owners authorization is suggested as being a good practice although it is recognized it may not be practical. Sometimes all that is needed is a copy of the construction agreement.

Application Fee

- 2.6 Every application for a development permit or an application for a Land Use Bylaw amendment, development agreement, site plan approval or a variance, shall be accompanied by a cheque payable to the municipality in the amount specified in Appendix 'A' of this Bylaw.

Section 49 of the Act allows municipalities to charge a processing fee for development permit applications.

The Act also provides for an application fee [S. 220(4)(l)] for a LUB amendment, development agreement, site plan, and variance applications.

Fees are adopted by Council by policy and can be amended in the same fashion (S. 211).

It is not mandatory to charge an application fee. Some municipalities may feel that general tax revenue is sufficient to pay for this service. It is, however, an option that is available, particularly if there is a lot of development activity. (The fee charged must reflect the normal costs associated with processing a development permit.)

Advertising and Notification Costs

- 2.7 (a) Where an application to amend this Bylaw or to enter into or amend a development agreement is made, the applicant shall deposit with the clerk at the time of application, an amount established by the clerk to be sufficient to pay the costs of any advertising and notification required.
- (b) If the amount paid under clause (a) is not sufficient to cover the costs incurred, the applicant shall pay to the clerk the additional amount required. If the amount paid is more than sufficient, the clerk shall refund the excess amount.

The Act provides for the recovery of these costs even if there is no such provision in the LUB. It is included here because it is good information for a prospective applicant.

Notice to Property Owners

- 2.8 (a) When an application has been received to amend this Bylaw for a site specific purpose, enter into a development agreement, or amend a development agreement, all property owners within 30 m. of the subject property shall be notified of the application by the clerk.

- (b) The notification set out in clause (a) shall be in addition to the advertisement for public hearing and shall be delivered to all affected property owners by mail prior to the public hearing.

The notification requirements in the Act are different for different actions. For LUB amendments, development agreements, and development agreement amendments, the LUB can establish the extent of the notification area (i.e., abutting properties or properties within a specified distance of the development or development property), the means of notification (i.e., regular mail, registered mail, hand delivered mail or sign on the property), and that the costs of such notification shall be borne by the applicant (S. 221). The Act requires two advertisements in a newspaper circulating in the area.

For site plan approval and variances there is no requirement for notification prior to the decision being made by the Development Officer. Section 236 requires notice be made to assessed property owners within 30 metres of the subject property within seven days after the decision.

Effective Date

- 2.9 This Bylaw shall take effect upon the date of publication of the notice advertising the new bylaw or amendment.

Part 3

Zones and Zoning Map(s)

Zones

- 3.1 For the purposes of this Bylaw the municipality is divided into the following zones, the boundaries of which are shown on the attached Schedule 'A'. Such zones may be referred to by the corresponding symbols shown below.

Zones	Symbol
Residential Low Density	R-1
Residential Medium Density	R-2
Residential High Density	R-3
Residential Manufactured Home	RMH
Residential Manufactured Home Park	RMHP
Commercial Local	C-1
Commercial General	C-2
Commercial Highway	C-3
Industrial Light	M-1
Industrial Heavy	M-2
Industrial Park	M-3
Institutional	I
Park	P
General Development	G
Rural Resource	RR
Watershed	W
Holding	H
Comprehensive Development District	CDD
Hazard	X

Special Overlay Zones

Flood Fringe
Heritage Conservation Design District
Site Plan Approval District
Bonus District

The choice of zone names and symbols rests entirely with the municipality, however, certain standard practices have evolved over the years. Normally the zone symbol consists of a letter and a number. The letter represents the

class of use while the number corresponds roughly with the density or intensity of the use. R-1, then would represent a low density residential zone while R-3 would be applied to a residential zone with a higher density.

The list shown here contains a wide variety of zones that may not be appropriate to all areas.

The zones listed as 'Special Overlay Zones' do not have symbols because they will most likely be shown as a grid or patterned polygon covering only a specific area and would overlay the underlying zones. These zones introduce an extra element of control specific to the circumstances they are applied to. For example, the Heritage Conservation Design District overlay will specify special design guidelines for everything from new buildings to signs and fences. There will be more discussion of this technique later.

Zoning Map

3.2 Schedule 'A' is the Zoning Map and forms part of this Bylaw.

Zones Not on the Map

3.3 The Zoning Map may be amended, in conformance with the municipal planning strategy, to use any zone in this Bylaw, regardless of whether or not such a zone had previously appeared on the Zoning Map.

This provision refers to 'floating zones'. These are zones set up in the municipal planning strategy but not applied to any land in the municipality. For example, planning documents may include provision for a Residential Manufactured Home Park Zone (RMHP) but no lands are zoned RMHP because there are no manufactured home parks in the municipality at the time and none are planned for any specific area. When such a development is proposed, the zone can be applied through the rezoning process and no policy amendment would be necessary.

Part 4 Interpretation

Symbols

- 4.1 The symbols used on the Zoning Map refer to the corresponding zones established in the Bylaw.

Interpretation of Zone Boundaries

- 4.2 (a) The extent and boundaries of zones are shown on the Zoning Map and the appropriate provisions of this Bylaw shall apply to all zones.
- (b) Boundaries between zones shall be determined as follows:
- (i) where a zone boundary is indicated as following a street the boundary shall be the centre line of the street unless otherwise indicated;
 - (ii) where the zone boundary is indicated as approximately following lot lines the boundary shall follow the lot lines;
 - (iii) where a railway right-of-way, electric transmission line right-of-way or a watercourse shown on a zoning map serves as a zone boundary, the centre line of the right-of-way or watercourse shall be considered the boundary between the zones unless otherwise indicated;
 - (iv) where none of the above apply, and where appropriate, the zone boundary shall be scaled from the Zoning Map.

Some municipalities may want to keep streets and watercourses outside of the zone boundary. There are pros and cons to this. It would make it easier to deal with such things as bus shelters, telephone booths and utility poles but it complicates abutting zone requirements if the street keeps the zones from abutting.

- (iii) Where a zone boundary is indicated as following the edge of a watercourse the zone shall follow any change in the boundary of that watercourse.

Interpretation of Certain Words

- 4.3 (a) In this Bylaw, words used in the present tense include the future, words in the singular number include the plural, words in the plural include the single number, the word "used" includes "arranged to be used", "designed to be used" and "intended to be used", and the word "shall" is mandatory.
- (ii) All official measurements are in metric. Where imperial measurements are provided they are for information purposes only.

Permitted Uses

- 4.4 (a) In this Bylaw any use not listed as a permitted use in a zone is prohibited in that zone unless otherwise indicated.
- (b) Where a permitted use within any zone is defined in this Bylaw the uses permitted in the zone include any similar uses that satisfy such definition except where a definition specifically excludes any similar use.

This is the standard practice but a bylaw can also do the opposite and list only the uses that are prohibited. In that case everything not listed would be permitted. This is sometimes used in rural areas where there is a greater acceptance to a mixture of uses.

All Land to be Zoned

- 4.5 All lands within the municipality (or planning area) shall be zoned except where specifically indicated as unzoned.

Schedules

- 4.6 (a) All schedules and figures attached to this Bylaw form an official part of the Bylaw.
- (b) Any appendices that may be attached to this Bylaw are for information purposes only and are not an official part of the Bylaw.

By attaching information items, like parking lot layout and stall dimensions or a list of contacts, as an appendix, these items can be updated and changed without having to go through the LUB amendment process

Part 5

Development Agreements

Development agreements can be looked at as mini Land Use Bylaws applying to just one development. Development standards are negotiated within the parameters of the supporting policy found in the municipal planning strategy and the applicable sections of the Act. A development agreement can override the LUB and the Subdivision Bylaw. Development agreements stay with the land until discharged by council, even after a sale of the property, and must be filed in the local Registry of Deeds. It is good practice, but not required, to register the development agreement in the Registry to make it easier to find during a title search.

Development agreements offer more direct Council control over development but they are time consuming and costly to both the municipality and the developer and should only be used where necessary.

Section 225(1) of the Act specifies that the supporting policy must clearly indicate the types of development to be considered by agreement, the area where they are to be located, and the criteria council shall have regard to when considering requests for development agreements. The Act also requires that developments to be considered by development agreement be identified in the LUB.

While not required, development agreements should contain a "sunset clause" which would allow Council to discharge the agreement, after a specified period of time, if the development has not proceeded. Without such a clause in the agreement Council can only discharge the agreement with the consent of the property owner.

The developments listed below are only a few examples of typical development agreements. They are set up to apply within certain future land use designations rather than certain zones. This allows more flexibility and avoids any necessity to rezone a lot before applying for a development agreement.

Development agreements and amendments to development agreements require a public hearing and are appealable to the Utility and Review Board. If the agreement identifies items that are not considered substantive, amending these items does not require a public hearing although they are still appealable and a newspaper notice is still required. (S. 230)

Developments to be Considered by Development Agreement

- 5.1 The following developments may be considered only by development agreement in accordance with the **Municipal Government Act** and the Municipal Planning Strategy:
- (i) a change of use of any nonconforming use, in accordance with policy . . . of the municipal planning strategy;
 - (ii) multiple unit dwelling development of more than 12 dwelling units, in a **Residential** designation, in accordance with policy . . . of the municipal planning strategy;
 - (iii) a shopping centre development in a **Commercial** designation, in accordance with policy . . . of the municipal planning strategy;

- (iv) office, hotel or residential development, or a mixture of these, more than 15 m. in height, in a **Commercial** designation, in accordance with policy . . . of the municipal planning strategy.

These examples are strictly for illustration. Development agreements should be used for developments that are outside of the normal development pattern for the community. In that way the LUB can be written to handle all of the development control requirements of the majority of developments that will take place.

In some cases, such as when dealing with local commercial uses or shopping centres, considering these uses by development agreement will eliminate the need for the Local Commercial Zone or the Shopping Centre Zone. Too many development agreements, however, will tend to slow development and create enforcement problems.

It should be noted that this example is only one way of handling development agreements. Some municipalities may prefer to place the development agreement provisions within the appropriate zone. This may make it simpler for people unfamiliar with the Bylaw to see what their development options are, all in one place.

Development Permits for Development Agreements

5.2 A development permit may be issued for a development listed in this Part, pursuant to the **Act**, provided:

- (i) the development agreement has been approved by Council,
- (ii) the appeal period has lapsed or any appeals that may have been lodged have been dealt with by the Utility and Review Board and the ruling was in favour of the development; and,
- (iii) the development conforms to the terms of the development agreement.

Part 6

General Provisions for all Zones

The General Provisions in this model represent the most common general provisions and standards found in Land Use Bylaws in Nova Scotia. They apply to all uses in all zones except where a specific use or zone is otherwise exempted. A number of the provisions presented may not be desirable or applicable in all municipalities. Each provision should be carefully considered before being put into a LUB. In addition, if provisions are not going to be enforced, they should not be put into the LUB.

The list presented here is not exhaustive. Every municipality will have different and unique situations to deal with. Keeping of farm animals or outdoor furnaces are examples of unique situations that could be dealt with in the general provisions part of the bylaw. Also, some municipalities may want to allow public parks and playgrounds in any zone. If so, the simplest way to do it would be to include them in the general provisions.

The general provisions here are listed in alphabetical order but they could just as easily be listed in any other format or order.

Accessory Buildings and Structures

- 6.1 (a) An accessory building or structure is permitted in any zone and may be used only as an accessory use to the main building or use, but it shall not:
- (i) be used for human habitation except where a dwelling is an accessory use;
 - (ii) be built in the front yard of any lot;
 - (iii) be built closer than __ m. to any lot line except that:
 - common garages for semidetached dwellings may be centred on a mutual side lot line;
 - in any residential zone, accessory buildings with no window or perforation on the side of the building that faces the lot line, may be built a minimum of __ m. from the lot line;
 - boat houses and docks may be built to the lot line where the lot line corresponds to the water's edge;
 - (iv) be built within __ m. of the main building.

In the second item of clause (iii) the notion is that if there are no openings in the wall that faces the lot line it can be built closer to the line.

- (b) Notwithstanding anything else in this Bylaw, awnings, clothesline poles, flag poles, garden trellises, retaining walls, signs, and fences shall be exempt from any requirement under subsection (a).
- (c) No accessory building or structure shall be constructed:

- (i) prior to the time of construction of the main building to which it is accessory, or
- (ii) prior to the establishment of the main use of the land where no main building is to be built.

Building to be Erected on a Lot

6.2 No building shall be erected or used unless it is erected on a single lot.

Building to be Moved

6.3 No building shall be moved to a lot within the municipality without the owner first obtaining a development permit to locate the building.

Calculation of Lot Frontage

- 6.4 (a) Lot frontage for a lot with a regular shape shall be measured as the distance between the side lot lines where they meet the front lot line.
- (b) Lot frontage for a lot with an irregular shape shall be measured as the distance between the side lot lines drawn at a 90-degree angle from a line drawn from the mid point of the rear lot line to the mid point of the front lot line and at a point equal to the required front yard. (See Figure 1)

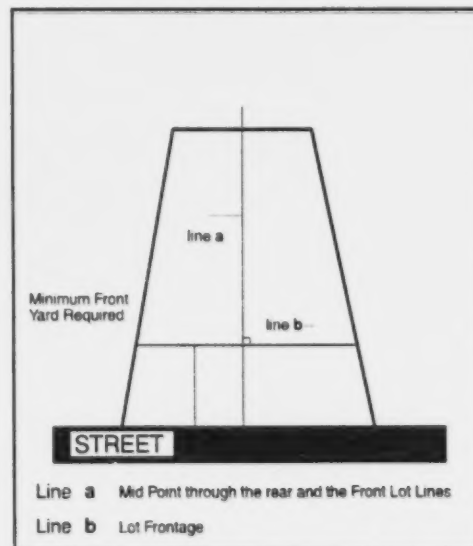


Figure 1

Some municipalities may want to simplify this by measuring all lots in the same manner as (a) except for lots located on an inside curve (concave shaped) which will be permitted a reduced frontage requirement. In this case Section 6.4 would read as follows:

- 6.4 (a) Lot frontage shall be measured as the distance between the side lot lines where they meet the front lot line.**
- (b) Notwithstanding the lot frontage requirements found elsewhere in this bylaw for lots located on an inside curve (concave shaped) the lot frontage requirement shall be reduced to a minimum of 6 m. (20 ft.).**

The 6 metre figure is shown just as a suggestion and may not be appropriate in every municipality. It reflects the fact that the Subdivision Regulations require that no lot can be created with a dimension less than 6 metres.

Conformity with Existing Front Yards

- 6.5** Notwithstanding the minimum front yard requirements found elsewhere in this Bylaw, in any zone, when a building is erected between two existing buildings within 30 metres of the proposed building, the minimum front yard requirement shall be no less than that of the adjacent building which is closest to the street.

Driveway Access

- 6.6 (a)** A through lot shall have access to one street only.

Some municipalities may find this overly restrictive and will want to delete subsection (a). If there is a concern about traffic cutting through lots the subsection could be reworded as follows:

- (a) Driveway access for a through lot may be provided to either or both streets but in no case shall a driveway continue from one street to the other.**

- (b)** A driveway access to:
- (i)** a local street shall be a minimum of 15 m. from a street intersection;
 - (ii)** a collector street shall be a minimum of 25 m. from a street intersection;
and
 - (iii)** an arterial street shall be a minimum of 30 m. from a street intersection.

To set out requirements such as this the terms local street, collector street, and arterial street should be defined.

The numbers shown here are suggestions only and reflect the differences in the functions of each type of street.

- (c)** A lot fronting on a collector or arterial street shall be limited to one driveway access point for every 30 m. of street frontage or portion thereof.

This provision is designed to reduce the number of street access points on busy streets. It is most likely this provision will impact commercial development the most and in that sense it is important to be sure it does not conflict with other access requirements such as those for parking lots or for service stations.

- (d) A driveway access shall be a minimum of 3 m. and a maximum of 11 m. wide.

Encroachments Permitted

- 6.7 The following portions of structures may project into a yard required by this Bylaw to the limit of the specified distance:

Structure or Feature	Distance
sills, cornices, eaves, gutters, chimneys, pilasters, and canopies	0.5 m.
window bays, cantilevers, oil tanks, and propane tanks	1.0 m.
exterior staircases, wheelchair ramps, and fire escapes	1.5 m.
balconies	2.0 m.
verandahs, porches, and decks	4.0 m.

Not all municipalities feel it necessary to have this provision. It depends very much on the level of control desired. In an area where design control is critical, it may be very important to control not only what features may encroach, but also, which yard may be encroached upon and by which feature. Without this provision or something like it, no encroachment would be permitted at all.

Frontage on a Street

- 6.8 Except as provided for in Section 6.20, no development permit shall be issued unless the lot intended to be used, or upon which a building or structure is to be erected, fronts upon a street.

This effectively prevents development on land locked lots or lots accessed only by water except if they are permitted under Section 6.20. Such a restriction may not be desirable for all municipalities. Also, it may be necessary to make a distinction between public and private streets. Most towns do not permit development on private streets and some rural municipalities restrict their use. If there are existing private streets but no new ones are to be allowed it will be necessary to modify the provision to allow development on both types of streets. For example: No development permit shall be issued unless the lot intended to be used, or upon which a building or structure is to be erected, abuts and fronts upon a public street or an existing private street.

Height Regulation Exemption

- 6.9 Any maximum height requirement set out in this Bylaw shall not apply to a church spire, lightning rod, water tank, monument, elevator enclosure, silo, flag pole, television or radio antenna, telecommunications tower, ventilator, skylight, barn, fire tower, drive-in theatre screen, chimney, clock tower, solar collector, power transmission towers, roof top cupola, or wind power generator.

These examples should be evaluated to see if they are all applicable within the municipality.

Illumination

- 6.10 No person shall erect a sign with lights external to the sign itself or illuminate an area outside any building or structure unless the illumination is directed away from adjoining properties and any adjacent street.

A Bylaw provision that deals with illumination requires supporting policy in the municipal planning strategy [S. 220(5)(c)].

Licenses, Permits and Compliance With Other Bylaws

- 6.11 (a) Nothing in this Bylaw shall exempt any person from complying with the requirements of any other Bylaw of the municipality or from obtaining any license, permission, permit, authority, or approval required by any other Bylaw of the municipality or any regulation of the Province of Nova Scotia or the Government of Canada.
- (b) Where the provisions of this Bylaw conflict with those of any other Bylaw of the municipality or regulation of the Province or the Government of Canada, the higher or more stringent provision shall prevail.

Multiple Uses

- 6.12 In any zone, where any land or building is used for more than one purpose, all provisions of the Bylaw relating to each use shall be satisfied. Where there is a conflict, such as in the case of lot size or frontage, the standards that apply to the most dominant use shall prevail.

In the past this section usually said the more stringent standards would prevail in the event of a conflict. The problem was you could have a fairly insignificant use in a building dictate the standards that would be applied to all of the other uses in the same building. The standards applied to a building should be those of the dominant use of the building. In a commercial building they should be commercial standards even if a residential use is also

permitted. Conversely, in a residential building the residential standards should apply even if a commercial use is also permitted.

Municipal Government Service Facilities

- 6.13 Notwithstanding anything else in this Bylaw, service facilities provided by the municipality such as, but not limited to, sewage treatment plants, pumping stations, transit transfer stations, water storage reservoirs, and storm water management facilities, may be located in any zone and no development permit shall be required and no zone standards shall apply.

Nonconforming Uses

- 6.14 (a) Any use of land or building or structure constructed, or being constructed, on or before the effective date of this Bylaw that does not conform to the requirements of this Bylaw shall be subject to the provisions of the Act respecting nonconforming uses and structures.

This is a statutory provision (S. 238, 239, 240, and 241). It does not need to be stated in the Bylaw but most municipalities put it in for information purposes.

- (b) Notwithstanding subsection (a), a nonconforming industrial use shall be permitted to change to a less obnoxious or less intensive industrial use in terms of traffic generated, hours of operation, outdoor storage, noise, and fumes.

Section 242 of the Act allows for subsection (b) provided there is supporting policy in the municipal planning strategy. A development agreement can also be used to accomplish this. What constitutes 'less obnoxious', however, can be difficult to determine.

Another way of dealing with nonconforming uses is to list them as 'existing permitted uses' in the zone in which they are located. This gives them status as a permitted use but prevents new similar uses from locating in the zone. The use should be identified and it should be made clear, if so desired, that no expansion of the use on the lot will be permitted.

One Main Building on a Lot

- 6.15 No person shall erect more than one main building on a lot except:

- (iii) in all Industrial Zones;
- (iv) in the Commercial General (C-2) and Commercial Highway (C-3) Zones;
- (v) in the Residential Medium Density (R-2) Zone;
- (vi) in the Residential High Density (R-3) Zone;
- (vii) in the Residential Manufactured Home Park (RMHP) Zone; and

(viii) in the Rural Resource (RR) Zone.

Some municipalities may wish to allow more than one main building on a lot as long as there is an ability to subdivide them later. Such a provision could be: "Notwithstanding Section 6.15, more than one main building may be placed on a lot provided there is sufficient area and frontage to enable the creation of as many lots as there are main buildings and each building is placed in such a way that the subsequent subdivision could take place."

Parking and Loading Requirements

- 6.16 (a) For every building or structure to be erected or enlarged, off-street parking shall be provided within the same zone as the use, in accordance with the following chart:

Type of Building	Parking Spaces Required
a dwelling containing less than 3 dwelling units	1 parking space for each dwelling unit
all other dwellings	1.5 parking spaces for each dwelling unit
boarding and rooming homes	1 parking space for the dwelling unit plus 1 parking space for every 2 rooms available for rent
churches, halls, auditoria, restaurants, theatres, arenas, stadia, private clubs and other places of assembly	where there are fixed seats, 1 parking space for every 5 seats, or 3 m. of bench space; where there are no fixed seats, 1 parking space for every 10 square m. of floor area
hospitals and nursing homes	1 parking space for every 2 beds or 40 square m. of floor area, whichever is greater
senior citizen housing	1 parking space for every 2 dwelling units
hotels, motels and tourist cabins	1 parking space for every suite or rental unit plus 1 parking space for every 5 square m. of floor space devoted to public use exclusive of lobbies or halls

Type of Building	Parking Spaces Required
offices	1 parking space for every 30 square m. of floor area used for offices
funeral homes	1 parking space for every 5 square m. of assembly floor area
bowling alleys and curling rinks	4 parking spaces for each bowling lane or curling sheet plus 1 parking space for every 10 square m. of other public floor space
all other commercial uses	1 parking space for every 30 square m. of floor area
elementary schools	1.5 parking spaces for each teaching classroom
junior and senior high schools	4 parking spaces for each teaching classroom
all industrial uses	1 parking space for every 50 square m. of floor area

The number of different classifications and the number of required spaces in this example is not necessarily right for every municipality. Some municipalities, for example, have adopted very simple parking standards which simply say: "Unless otherwise specified one parking space shall be provided for every dwelling unit and for every 30 square m. of nonresidential floor area."

Some municipalities may also want to set special parking standards for downtown areas. For example reduced parking requirements may be appropriate where there is on street parking available or the Council may want to encourage transit usage.

Note that this provision does not require the parking spaces be provided on the same site as the use. In that way a single parking lot could supply parking spaces for several different uses in the same area.

- (b) A parking space shall measure 2.5 m. by 6 m. exclusive of *driveways* and manoeuvring aisles.
- (c) One loading space shall be provided for every 3000 gross square m. (32,400 sq. ft.) of commercial, industrial and institutional floor space to a maximum of 6 loading spaces.
- (d) A loading space is not required for any building less than 140 square m. in area.

- (e) A loading space shall be:
 - (i) a minimum of 3.5 m. by 12.5 m. with a minimum height clearance of 4.5 m.;
 - (ii) located in the rear or side yard only and screened from adjoining residential or park uses;
 - (iii) constructed with a stable surface which is treated to prevent the raising of dust or loose particles; and
 - (iv) have access to the street by means of a minimum 3 m. wide driveway for one way and 6 m. wide driveway for two way traffic.

Again, the loading space requirements in this example may not be right for all municipalities. Some exemptions may be necessary for downtown buildings where the existing development pattern does not provide the required space.

Parking Lot Standards

6.17 Where a parking lot for more than four spaces is to be constructed:

- (i) the parking lot shall be constructed with a stable surface that is treated to prevent the raising of dust or loose particles;
- (ii) any lighting used to illuminate the parking lot shall be arranged in such a manner to divert light away from streets, adjoining lots and buildings;
- (iii) a structure not more than 4.5 m. in height and not larger than 4.6 square m. in area may be erected for use of attendants;
- (iv) where a permanent hard surface is used, each parking space shall be marked;
- (v) approaches or driveways to the lot shall be defined by a curb of concrete or rolled asphalt and the limits of the lot shall be defined by a fence, curb or other suitable obstruction designed to provide a neat appearance; and
- (vi) the approaches or driveways to the lot shall not exceed two in number from any one street, and shall be between 6 and 7.5 m. in width.

The main objective of parking lot controls is to make sure they are adequate for their purpose and do not create a nuisance for neighbouring properties while they exist. Landscaping requirements, which are not included here, could be added as a further way to protect adjoining properties.

Some of the requirements will require policy support in the MPS before they can be included (ie. access and illumination regulation).

Parking for People With Disabilities

- 6.18 (a) In addition to the parking requirements found in Section 6.17, where off street parking is to be provided on the same lot as the building, one space dedicated to people with disabilities shall be provided for every 100 spaces provided, or part thereof.

- (b) Such parking spaces shall be 3.7 m. wide and be no more than 50 m. away from the entrance designed for use by people with disabilities.

The Nova Scotia Building Code Regulations call for dedicated parking spaces for disabled persons. The number and measurements used in this section come from these regulations.

Public and Private Utilities

- 6.19 Notwithstanding anything else in this Bylaw, public and private utilities located within the street right-of-way or underground may be placed in any zone, and no development permit shall be required and no zone standards shall apply.

If the zone boundary includes the street there should be some provision made for the placement of utilities such as power and telephone lines, cable tv lines and so on, which would typically go on poles within the street right-of-way.

Reduced Lot Requirements

- 6.20 Notwithstanding anything else in this Bylaw, a lot approved in accordance with the Subdivision Bylaw may be used for a purpose permitted in the zone in which it is located and a building may be erected provided all other applicable provisions of this Bylaw are satisfied.

The municipality's Subdivision Bylaw may allow for a number of lots to be created that do not meet the frontage and area requirements of the LUB. For example, Section 279 of the Act allows a Subdivision Bylaw to provide for a 10% variance in frontage and area requirements for two lots only. Also, the Subdivision Bylaw may allow the creation of a limited number of lots which do not have frontage on a street.

The LUB could detail which specific situations may be applicable but that is not recommended. Let the Subdivision Bylaw deal with the creation of lots and the LUB deal with their development.

The relationship between the Subdivision Bylaw and the LUB is very close but they are distinctly different. Lot size (area and frontage) is one place where the two documents must work together. In areas where a LUB is in effect the Subdivision Bylaw will defer to the LUB for lot size requirements. In areas where there is no LUB the Subdivision Bylaw must contain minimum lot size requirements. Since April 1, 1999 every municipality in the province has a Subdivision Bylaw. [S. 270(5)]

Restoration to a Safe Condition

- 6.21 Nothing in this Bylaw shall prevent the strengthening or restoring to a safe condition, any building or structure.

This provision is statutory and therefore not required in the LUB. It is, however, important information and it is useful to include it here.

Setback for Flanking Yard

- 6.22 (a) Notwithstanding anything else in this Bylaw, on a corner lot in any zone, where there are adjacent buildings facing the flanking street, the minimum yard requirement for the flanking yard shall be the same as that required for the front yard.
- (b) No accessory building or structure shall be permitted within the required flanking yard.

Side Yard Waiver

- 6.23 Notwithstanding anything else in this Bylaw, where buildings on adjacent lots share a common wall, the applicable side yard requirement will be zero along the common lot line.

This provision is usually included in residential zone standards to accommodate semidetached dwellings and town house development. But it can also apply to other uses such as commercial or industrial buildings.

Temporary Uses, Buildings and Structures Permitted

- 6.24 (a) Nothing in this Bylaw shall prevent the temporary use of land or the temporary use of a building or structure incidental to a construction project provided that a development permit has been issued for the main construction project and the temporary use is discontinued and removed within 30 days following completion of the main construction project.
- (b) A building or structure may be erected, or an area of land used, for a special occasion or holiday provided that no such building or structure shall remain in place for more than 14 consecutive days after the close of the event.
- (c) No development permit shall be required for a temporary use.

Through Lots

- 6.25 Notwithstanding anything else in this Bylaw, on a through lot, a building may be erected facing either street and, for the purposes of determining yard standards, the front yard standard shall apply on both streets.

Variance

- 6.26 (a) Notwithstanding the general requirements set out for each zone in this Bylaw, the Development Officer may grant a variance from the minimum lot area and frontage, the minimum yard dimensions, and the area of land that may be built upon, provided there is no intentional disregard for this Bylaw or for the intent of the Bylaw and the difficulty is not general to the area.
- (b) Where a variance is granted or refused the appeal and the notice provisions of the Municipal Government Act shall be complied with and the applicant shall pay to the Clerk the costs of notifying affected land owners.

The variance provisions are statutory and do not strictly have to be placed in the Bylaw. They are placed here for information purposes only. Section 235(2) of the Act enables the municipality to expand on these variance provisions through policy in the strategy and appropriate provision in the LUB

There is no statutory limitation on how large a variance can be granted. Each individual Development Officer will generally set their own standard as to what is reasonable. While each case will differ as circumstances are different, it is important to be consistent and treat each case fairly and objectively.

Visibility at Street Intersections

- 6.27 On a corner lot, within a triangular area 6 m. back from the intersecting corner lot lines, no building, structure or vegetation of any kind shall be erected or permitted to grow to a height greater than 1 m. above the grade of the abutting streets.

Waiver of Minimum Yard Standards

- 6.28 (a) Notwithstanding anything else in this Bylaw, a building erected on or before the effective date of this Bylaw and which has less than the minimum yard distances required by this Bylaw, may be enlarged, reconstructed, renovated or repaired provided the said development does not further reduce the yard distance that does not conform to this Bylaw and all other applicable provisions of this Bylaw are satisfied.
- (b) Any building erected on or before the effective date of this Bylaw may be used in a manner permitted in the zone in which the building is located.

This section is essentially dealing with nonconforming buildings. The Act, in section 239, gives these buildings certain rights. It allows a residential buildings to be rebuilt if it is totally destroyed, provided it is substantially the same as it was, and a nonresidential building to be rebuilt if not more than 75% of the market value of the building is destroyed. This section extends those rights by treating all buildings the same, with respect to renovations, and therefore must be supported by policy in the municipal planning strategy.

Waiver of Minimum Lot Area and Frontage Standards

- 6.29 (a) Notwithstanding anything else in this Bylaw, in a residential zone, a lot served with municipal sewer and water services, which existed on or before the effective date of this Bylaw and which had less than the minimum frontage or area required by this Bylaw, may be used for a purpose permitted in the Residential Low Density R-1 Zone, and a building may be erected on the lot provided that all other applicable provisions of this Bylaw are satisfied.
- (b) An existing undersized lot which is increased in area or frontage or both, but remains undersized, is still considered an existing undersized lot for the purposes of this section.

Every lot created after the effective date of the Bylaw will conform to the lot size requirements of the Bylaw. But there may be some lots created before the Bylaw which do not conform. These lots will need to be given special development rights. Even though the lot size and frontage requirements are waived the yard distances are not. This means that some of these undersized lots, if they are too small, cannot possibly be built upon. This waiver is only applied to residential zones and only allows the minimum residential development to take place.

The 'effective date' is the date the Bylaw is published. When a Bylaw is adopted to replace an existing Bylaw, a municipality may wish to have the effective date be the date of the original Bylaw. If that is the case, the definition of 'effective date' should be written to reflect this.

Watercourse Separation Distance

- 6.30 With the exception of marine uses, water and sewage treatment uses and accessory buildings permitted in Section 6.1, no structure shall be located closer than 15 m. (50 ft.) from a watercourse.

It may be necessary to re-evaluate this provision as more and more marine industrial uses are converted to museums and tourist related commercial uses.

Yard Requirements Concerning Natural Hazard Areas

- 6.31 The required front, rear or side yard as set out in this Bylaw shall not include any portion of the lot covered by a natural hazard such as, but not limited to, a marsh, the bank of a watercourse, or a slope greater than 15 percent.

Part 7

Signs

Sign regulations require the support of appropriate policy in the municipal planning strategy. At a minimum the policy should say the municipality intends to regulate or prohibit advertising signs in relation to their size, location, number and type. Where specific provisions are set out for temporary or mobile signs, these too should have policy support. In some cases, in specific areas, a municipality may want to regulate the design and materials of a sign in terms of colours, shape, style of lettering and so on. This too should be clearly spelled out in the policy.

A municipality cannot regulate sign content except for certain words or phrases that are reserved for traffic control and public safety such as "STOP", "ONE WAY", "CROSS WALK" and so on.

Sign regulation is a controversial issue. The provisions set out in this Part are comprehensive and may not be appropriate or wanted by all municipalities. Enforcement is also an issue in that it must be fair and is never easy.

General

- 7.1 (a) Except where otherwise exempted in this Bylaw, no person shall erect a sign without first obtaining a development permit from the Development Officer and no development permit to erect a sign shall be issued unless all sign provisions of this Bylaw are satisfied and the main use for which the sign is intended has been completed.
- (b) An indoor sign shall not be considered a sign for the purposes of this Bylaw unless it is intended to be viewed from outside of the building.

Maintenance

- 7.2 (a) Every sign shall be kept in good repair and working order.
- (b) If the business, service or other enterprise for which a sign is erected is no longer in operation the sign shall be removed, by the owner, within 30 days of the date the operations cease. Removal of a sign includes the support structure or apparatus to which it is attached.
- (c) Subsection (b) shall not apply to a seasonal enterprise that normally closes during part of the year, however, a sign advertising a seasonal enterprise shall indicate the time of year the enterprise is in operation or, conversely, the time of year it is not in operation.

Number of Signs

- 7.3 (a) For the purposes of this section a sign structure with two or more faces such as a projecting sign or a ground sign, shall count as one sign.

- (b) No more than one sign for any one enterprise may be erected on a lot except for a corner lot where no more than two signs for any one enterprise may be erected.

Signs Permitted in all Zones

7.4 The following signs shall be permitted in all zones and no development permit shall be required:

- (i) signs identifying the name and address of a resident and not more than 0.5 square m. in area;
- (ii) signs for regulating the use of a property such as "NO TRESPASSING" and of not more than 0.5 square m. in area;
- (iii) real estate signs which advertise the sale, rental or lease of the premises;
- (iv) on-premise directional or traffic control signs not more than 0.5 square m. in area;
- (v) signs erected by a government body or under the direction of a government body;
- (vi) memorial signs or tablets;
- (vii) community identification signs;
- (viii) the flag, pennant or insignia of any government, religious, charitable, or fraternal organization;
- (ix) temporary election signs;
- (x) temporary signs advertising a construction firm in the area where the construction is taking place; and
- (xi) church identification signs.

Signs Prohibited in all Zones

7.5 The following signs are not permitted in any zone:

- (i) signs that incorporate flashing illumination or moving parts;
- (ii) roof signs;
- (iii) any signs or sign structures that is or could be a safety hazard;
- (iv) any signs that obstruct or detract from the visibility or effectiveness of any traffic sign or control device;
- (v) any signs that obstruct the free egress from any fire exit door, window, or other required exit way;
- (vi) signs not erected by a public authority that make use of words such as 'STOP', 'LOOK', 'ONE WAY', 'DANGER', 'YIELD', or any similar word, phrase, symbol, light, or character in such a manner as to mislead or confuse the traffic along a street;
- (vii) any signs erected upon a public property or a public right-of-way unless erected by a public authority or authorized by a public authority;
- (viii) signs painted on, attached to or supported by a tree, stone cliff or other natural object; and
- (ix) signs not related to any business or use located on the lot or premises.

This last provision (ix) has far reaching implications because it effectively prohibits billboards and other forms of off-site advertising signs.

Wall Signs

- 7.6 No wall sign shall exceed ____% of the area of the wall to which it is affixed or extend above the top or beyond the sides of the wall to which it is affixed.

Projecting Signs

- 7.7 Projecting signs shall:

- (i) not have a sign face larger than ____ square m.;
- (ii) not project further than ____ m. from the wall to which it is affixed;
- (iii) not project above the wall to which it is affixed;
- (iv) not extend beyond the property line of the property on which it is erected;
- (v) not swing freely on its support; and
- (vi) be erected not lower than ____ m. and not higher than ____ m. above the ground.

Ground Signs

- 7.8 Ground signs shall:

- (i) not exceed ____ m. in height;
- (ii) not have a sign face larger than ____ square m.; and
- (iii) not extend beyond the property line of the property on which it is erected.

Mobile Signs

- 7.9 (a) Mobile signs shall be permitted, in addition to the number limits of Section 7.3, only in commercial and industrial zones and under the following conditions:
- (i) no more than one such sign is permitted on a lot;
 - (ii) the sign will be removed after a maximum of 30 consecutive days;
 - (iii) the sign has no moving parts or flashing or unshielded lights; and
 - (iv) the sign does not exceed ____ square m. in size.
- (b) A mobile sign shall not be permitted on a lot for more than ____ 30 day periods in any calendar year.

Canopies or Awnings

- 7.10 Signs incorporated in a canopy or awning shall be permitted in addition to the number limits under Section 7.3.

Sandwich Board Signs

- 7.11 Sandwich board signs shall be permitted, in addition to the number limits under Section 7.3, only in commercial and industrial zones and only for special promotions provided they:
- (i) have a sign face no larger than ___ square m.;
 - (ii) are the only such sign on the lot; and
 - (iii) do not obstruct pedestrian or vehicular traffic along any publicly owned land such as a sidewalk or street right-of-way.

Signs in Sports Fields and Outdoor Arenas

- 7.12 Notwithstanding the number limitation in Section 7.3 and clause (ix) of Section 7.5, any number of sponsorship signs may be erected in a sports field or outdoor arena provided the signs are intended for view from within the sports field or outdoor arena.

The provisions for signs in this Model Bylaw have prohibited billboards and other off premise advertising signs. Some municipalities may want to allow this type of advertising and therefore should have a section specifically dealing with it. Attention should be paid to location ie. the zone they will be permitted in or the roads they will be restricted to, their size, and any setback requirements. If off premise advertising signs are to be permitted the Provincial Department of Transportation and Public Works has regulations that apply to signs along provincially owned roads. Municipalities may want to consider something similar for municipally owned roads.

Billboard regulation along with all sign provisions must be supported by plan policy.

Large chain stores will quite often have a name sign incorporated into the design of the front facade of the building. In addition these stores are usually found in the middle of large parking lots and are set back from the street a fair distance. These are usually larger than a normal wall sign and should probably be treated separately. One way to do this is to add a second subsection to section 7.6 such as:

- 7.6 (b) *Notwithstanding subsection (a) above, business name signs that are incorporated into the design of the facade of the building or are set back from the street a distance greater than 100 m., shall be exempt from the size limitation.*

Part 8

General Provisions for Residential Zones

Home Occupations

- 8.1 (a) Any dwelling may be used for a home occupation provided that:
- (i) the dwelling is occupied as the principal residence of the operator of the home occupation;
 - (ii) the external appearance of the dwelling is not changed by the home occupation;
 - (iii) there are no more than two assistants employed in the home occupation;
 - (iv) not more than 25 percent of the total floor area of the dwelling is devoted to the home occupation;

Some municipalities may want to put an upper square metre limit on the allowable floor space devoted to the home occupation. Also, in some cases it may be desirable to allow an accessory building to be used for a home occupation. If so, a maximum square metres should be used to restrict the size of the business.

- (v) one off street parking space, other than that required by the dwelling, is provided;
- (vi) the business identification sign advertising the business is no larger than 0.5 square m. in area and is non-illuminated;
- (vii) no mechanical equipment is used except what is reasonably consistent with the use of the dwelling; and
- (viii) there is no outdoor storage or display.

This last provision may not be acceptable in rural areas. If outdoor storage is to be allowed, it should be required to be screened or located in the rear yard.

When developing regulation for home occupations, it is important to remember these are residential dwellings in residential zones. A home occupation should not be allowed to become so large or be so noticeable that it takes away from the ability of others to enjoy the area as a residential area. Also, too many home occupations, especially large ones, can have a detrimental effect on the viability of the commercial areas of the municipality.

- (b) A home occupation shall include the following types of uses:
- (i) offices
 - (ii) artisan workshops with or without a retail sales component
 - (iii) catering establishments
 - (iv) hairdressing salon including a barbershop
 - (v) photographic studio
 - (vi) day care centre
 - (vii) bed and breakfast establishments

In some cases, particularly in rural areas, the list may also include such business as:

- ▶ *convenience store*
- ▶ *auto body repair shop*
- ▶ *small engine repair shop*
- ▶ *fishing gear manufacturing and repair.*

In some cases it might be desirable to distinguish between 'urban' home occupations in built-up areas and 'rural' home occupations in sparsely populated areas of the municipality. In all cases definitions should be used to ensure there is no confusion over what use can qualify as a home occupation.

A bed and breakfast establishment may not be suitable as a home occupation, especially given the 25% size limitation. If so, they should be listed as a permitted use in the appropriate zone (eg. R-1). It may be necessary to have special requirements for these uses such as more parking, and that they be located on certain streets or close to collector or arterial streets. In the latter case collector and arterial streets would have to be identified in the Bylaw.

Parking of Large Motor Vehicles

- 8.2 No motor vehicle larger than 6000 pound gross vehicle weight, that is not being used at the site for a commercial purpose, shall be parked overnight in any residential zone.

Large trucks can create a nuisance when parked in residential areas overnight. Particularly those that make a continuing noise like refrigeration trucks. They can be considered a part of the business equipment that should be kept at the business site.

Services Required

- 8.3 Developments with more than two units within the R-2, R-3 and the RMHP Zones shall only be located on lots served with central sewer and water services.

Because of the relative high density of dwelling units in the R-2 and R-3 zones and in a manufactured home park, central sewer and water should be required for the development of these uses.

Part 9 Residential Low Density (R-1)

Permitted Uses

9.1 The following uses shall be permitted in the Residential Low Density Zone (R-1):

- (i) single unit dwellings
- (ii) two unit dwellings
- (iii) parks and playgrounds

This list of permitted uses is small but reflects the intent of the zone. It is generally thought that single and two unit dwellings can coexist quite nicely together. Even so, some municipalities may want to place single unit dwellings into a separate zone. If so, two unit dwellings should be placed into the Residential Medium Density Zone (R-2).

Missing from the list is schools and churches which are quite often found in the residential zones. In this Bylaw these uses are treated as institutional uses not residential and as such are placed in the Institutional Zone.

For simplicity the Bylaw does not differentiate between duplex, semidetached, or accessory apartment uses. Lot size standards are set on a per unit basis.

R-1 Zone General Requirements

9.2 The following requirements apply to all uses:

Requirement	Standard with Central Sewer and Water Services	Standard without Central Sewer and Water Services
Minimum lot area	450 sq. m.(5000 sq. ft.) /dwelling unit	2700 sq. m.(30,000 sq. ft.)/ dwelling unit or larger size as required in a report from a qualified person
Minimum lot frontage	15 m. (50 ft.)	75 m. (250 ft.)
Minimum front yard	6 m. (20 ft.)	6 m. (20 ft.)
Minimum rear yard	6 m. (20 ft.)	6 m. (20 ft.)
Minimum side yard	2.4 m. (8 ft.)	2.4 m. (8 ft.)
Maximum building height	10.5 m. (35 ft.)	10.5 m. (35 ft.)

Requirement	Standard with Central Sewer and Water Services	Standard without Central Sewer and Water Services
Maximum lot coverage	35%	10%

The dimensions used here are suggestions only and may not be suitable in every situation. The minimum size of lots to be served with on-site septic and water is the standard required from the Nova Scotia Department of Environment and Labour. Depending upon soil conditions and topography a larger size may be required when an assessment is made by a qualified person. All development lots are assessed at the time of subdivision and they cannot be created unless they can properly accommodate the septic system. Serviced lots, on the other hand, can be created at any size. In this case it tends to promote an orderly form of development and it may be desirable, for planning reasons, to require different lot sizes for different types of development or in different areas of the municipality.

Part 10 Residential Medium Density (R-2)

Permitted Uses

10.1 The following uses shall be permitted in the Residential Medium Density Zone (R-2):

- (i) any use permitted in the R-1 zone subject to the R-1 Zone requirements
- (ii) dwellings with more than 2 but not more than 6 units
- (iii) bed and breakfast establishments
- (iv) day care centres
- (v) grouped dwellings with a total of not more than 6 units

R-2 Zone General Requirements

10.2 The following requirements shall apply to all uses:

Requirement	Standard
Minimum lot area	180 sq. m.(2000 sq. ft) /dwelling unit
Minimum lot frontage	30 m. (100 ft.)
Minimum front yard	6 m. (20 ft.)
Minimum rear yard	6 m. (20 ft.)
Minimum side yard	2.4 m. (8 ft.)
Maximum height of main building	10.5 m. (35 ft)
Maximum lot coverage	35%

The general requirements for the R-2 zone allow for a slightly higher density of development. The minimum lot size requirement works out to about 21 units per acre. By setting a sliding minimum lot size, based on the number of units to be developed, the density remains the same no matter how many units are to be developed.

Special Requirement - Landscaping

10.3 In the case of a building containing 3 or more units, or bed and breakfast establishments, outdoor parking and service areas shall be screened from the street and adjacent residential property through the use of landscaping or opaque fencing.

Part 11 Residential High Density (R-3)

Permitted Uses

11.1 The following uses shall be permitted in the Residential High Density Zone (R-3):

- (i) boarding and rooming houses
- (ii) uses permitted in the R-2 zone subject to the R-2 Zone requirements
- (iii) dwellings with more than 6 but not more than 12 units

The examples presented in this Model Bylaw allow multi-unit residential development up to 12 units as-of-right and anything more than 12 units to be developed through the development agreement process. The thinking is that any building with more than 12 units will be of sufficient size that it will have a more severe effect upon the surrounding neighbourhood. Because of this it should be considered more carefully in terms of the size and shape of the building, the landscaping and open space needs and whether or not the physical and social services are in place to accommodate the development.

R-3 Zone General Requirements

11.2 The following requirements shall apply to all uses:

Requirement	Standard
Minimum lot area	135 sq. m.(1500 sq. ft) /dwelling unit
Minimum lot frontage	30 m. (100 ft.)
Minimum front yard	6 m. (20 ft.) for every 10 m.(33 ft.) in building height
Minimum rear yard	6 m. (20 ft.)
Minimum side yard	2.4 m. (8 ft.)
Maximum height of main building	NA
Maximum lot coverage	35%

Again, in the R-3 zone, a sliding minimum lot size requirement is used based upon the number of units being developed. In this case the density is a little higher at about 29 units per acre. Also introduced here is a sliding

front yard requirement based upon the height of the building. There is no height restriction imposed because it was felt with a maximum of only 12 units and the front yard requirements, building height would not be a problem.

Special Requirement - Landscaping

- 11.3 In the case of a building containing 6 or more units, outdoor parking and service areas shall be screened from the street and adjacent residential property through the use of landscaping or opaque fencing.

Part 12

Residential Manufactured Home (RMH)

The entire issue of manufactured homes will be the subject of a separate document to be prepared and released by the Housing Division of the Department of Community Services. These zones are appropriate in a land use bylaw and the headings will be left here for reference. How to deal with them, however, will be presented in a different document.

Part 13

Residential Manufactured Home Park (RMHP)

As mentioned in Part 12, the issue of manufactured housing will be the subject of a separate document. The headings are left here for reference.

Model Land Use By-law

Part 14

General Provisions for All Commercial Zones

Commercial uses are much more diverse in nature than residential uses. In addition they differ with regard to such things as parking, signage, outdoor storage and traffic. Commercial zoning is difficult not so much because of the diversity but because of the delicate balance that is necessary. Not enough commercially zoned area can lead to stifling of commercial activity while too much can lead to sprawl and land use conflicts. In addition, there are always areas of transition that will need special attention.

There are three commercial zones set out in this Model Bylaw. Commercial Local, Commercial General, and Commercial Highway. Shopping centres are permitted through the development agreement process and so are not given a zone of their own. The thinking here is that shopping centres tend to have a fairly large impact on the surrounding neighbourhood and because of that should be evaluated on a case by case basis. There is no right or wrong way to do this. Some municipalities may want to give shopping centres their own zone and that is certainly a valid way to proceed.

There is no downtown commercial zone set out here. The intent is to do things as simply as possible. In that regard the downtown commercial uses were considered no different from other general commercial uses and so no special zone was needed. There may, however, be a need to have different parking standards for downtown areas.

Not all municipalities will want or need a part of the Bylaw dedicated to General Provisions for All Commercial Zones. But if there are some provisions that will apply to all commercial zones it makes sense to include them here rather than repeating them in every zone.

Special Requirement - Lots Abutting Residential and Institutional Zones

14.1 Where the yard of a lot located within any commercial zone abuts a lot in a residential, or institutional zone the following standards apply:

- (i) the minimum setback of the commercial use from the abutting lot line shall be ____ m.;
- (ii) no open storage or outdoor display shall be permitted in the abutting yard of the commercial zone;
- (iii) no portion of any parking space within the commercial zone shall be permitted in any abutting yard except where the parking space is screened from view with a ____ m. high fence; and
- (iv) in addition to the provisions of **Part 7 Signs** no sign that is greater than ____ square m. in area or greater than ____ m. in height shall be placed in the abutting yard of the commercial zone.

These provisions will require supporting policy in the municipal planning strategy. Although no numbers are given, the intent would be to protect abutting uses from the potential negative effect of the commercial use.

Automobile Service Station Requirements

14.2 Where a proposed development is for an automobile service station the following special provisions shall apply:

- (i) minimum lot frontage shall be ____ m.;
- (ii) no portion of any pump island (the raised concrete pad on which the gas pumps are situated) shall be located closer than ____ m. from the street;
- (iii) the minimum distance between driveways shall be ____ m.;
- (iv) the minimum distance from any driveway to a street intersection shall be ____ m.; and
- (v) the width of the driveway shall not be less than ____ m..

Automobile service stations are changing. What used to be a use devoted exclusively to the fuelling and maintenance of automobiles is now a gas station/corner store/fast food restaurant/coffee shop/dry cleaners centre. What hasn't changed, though, is the fact that these uses depend on the fast movement of vehicles both in and out of the property. Provisions that regulate access should be carefully considered and supported by policy.

Service station canopies are an issue in some municipalities. The major oil companies utilize standard station designs that usually include a large canopy over the gas pumps. The issue here is design standards and encroachment onto adjacent properties.

Screening of Refuse Containers

14.3 In any commercial zone where refuse and recycling containers are located outside the building they shall be screened from the adjacent property and the street through the use of landscaping or opaque fencing.

Services Required

14.4 Developments within the C-2 and C-3 Zones shall only be located on lots served with central sewer and water services.

Part 15 Commercial Local (C-1)

This zone is designed for small scale commercial stores and services that are intended to serve the needs of a local neighbourhood. A fairly extensive list of uses is provided to show the range of uses that could be permitted in this zone. Not all of these uses will be appropriate for every municipality. Also, it is quite common to zone only existing local commercial uses C-1 and require a rezoning if new local commercial uses are proposed for development in a residential area.

The local commercial zone is somewhat unique in that it is usually found in the Residential designation on the Generalized Future Land Use Map.

Permitted Uses

15.1 The following uses shall be permitted in the Commercial Local Zone (C-1):

- (i) bakery shop
- (ii) convenience store
- (iii) drug store
- (iv) dwelling units (within the commercial use building)
- (v) ice-cream shop
- (vi) office
- (vii) restaurant
- (viii) personal service shop
- (ix) uses permitted in the R-1 zone
- (x) video rental shop
- (xi) recycling depot

This list of permitted uses contains some generic terms such as "office" and "personal service shop". These generic terms are useful in that they allow for the accommodation of unforeseen uses that fit into the group. Personal service shops, for example, could include laundromats, dry cleaners, barber shops, and beauty salons. If the municipality wanted to be more specific, they should be careful to state only those uses that they want permitted and stay away from generic terms.

The list of uses presented here is very broad and may not be appropriate in all cases. Just allowing convenience stores, for example, may be all that is necessary and prudent given the residential neighbourhoods in which these uses will be located.

C-1 Zone General Requirements

15.2 The following requirements apply to all uses:

Requirement	Standard with Central Sewer and Water Services	Standard without Central Sewer and Water Services
Minimum lot area	450 sq. m. (5000 sq. ft.)	2700 sq. m.(30,000 sq. ft.) /dwelling unit or larger size as required in a report from a qualified person
Minimum lot frontage	15 m. (50 ft.)	75 m. (250 ft.)
Minimum front yard	6 m. (20 ft.)	6 m. (20 ft.)
Minimum rear yard	6 m. (20 ft.)	6 m. (20 ft.)
Minimum side yard	2.4 m. (8 ft.)	2.4 m. (8 ft.)
Maximum building height	10.5 m. (35 ft.)	10.5 m. (35 ft.)
Maximum lot coverage	35%	10%

These standards are essentially the same as those required for the R-1 zone. Since this zone will typically be found in the residential areas, it seemed appropriate to apply the same standards. The only additional consideration will be the room for off street parking. The parking standards in this Bylaw would require 5 parking spaces be provided if the largest possible commercial space were utilized (135 sq. m. divided by 30). That should be able to be accommodated within the front or rear yard space.

Maximum Commercial Floor Area

15.3 The net commercial floor area for a building in the C-1 zone shall not exceed 135 sq. m. (1500 sq. ft.).

The Act does not specifically enable a municipality to set a maximum floor area for a use unless it is found in association with another use in the same building. A maximum size may, however, be set when the size is fundamental to the nature of the use. In this case, size is essential to the definition of the use and therefore a maximum floor area can be set. A local commercial use is only local by virtue of it being a certain size (in this case 135 sq. m.). If the use is larger than that it is no longer a local commercial use.

The suggested number may not be appropriate in all cases. Also, it should be noted that the regulation is for "net" commercial floor area. This would exclude any part of the building used for a residence and areas used for maintenance, washrooms, storage etc.

Special Requirement - Open Storage

15.4 No open storage or outdoor display shall be permitted in the C-1 zone.

Even though these are not uses that would normally be associated with outdoor storage a municipality may want to include a requirement such as this in the Bylaw.

Part 16 Commercial General (C-2)

This zone is applied to areas in a municipality where normal everyday commercial activity is to take place. Some municipalities will want to separate this zone into categories like "Downtown Commercial" or "Tourist Commercial" and sometimes even "Waterfront Commercial".

This zone would typically be applied in downtown areas and commercial nodal areas outside of the downtown.

Permitted Uses

16.1 The following uses shall be permitted in the Commercial General Zone (C-2):

- (i) any business or commercial retail enterprise, **excluding** shopping centres
- (ii) day care centres
- (iii) offices
- (iv) parks and public open spaces
- (v) public transit stations
- (vi) residential uses (not on the ground floor) in combination with permitted commercial uses
- (vii) uses permitted in the Institutional (I) zone

The permitted uses in this zone are very broad. No attempt has been made to identify specific commercial uses because of the possibility of missing some unintentionally. If there are specific uses that should not be included they can be listed as prohibited.

The zone allows residential uses but only if they are in combination with a commercial use or uses. There is no real limitation here except for what will be applied by the development standards. The theory is that this kind of freedom will result in a vibrant and interesting environment.

C-2 Zone General Requirements

16.2 The following requirements apply to all uses:

Requirement	Standard
Minimum lot area	NA
Minimum lot frontage	NA
Minimum front yard	NA
Minimum rear yard	NA
Minimum side yard	NA

Requirement	Standard
Maximum building height	15 m. (50 ft.)
Maximum lot coverage	50%

There are very few general requirements applied to the Commercial General Zone because it was felt that most of these decisions are best left to the developer. It is probable that developers will want to maximize their return on investment and build as big a building as they can. The standards shown here will control that aspect of the development but will not overly restrict the placement of the building on the lot. It should also be noted that the Building Code will also have a limiting influence on building placement.

Special Requirement - Open Storage

16.3 No open storage or outdoor display shall be permitted in the C-2 zone.

This is an important provision because of the broad nature of the uses permitted in the zone. This provision will have the effect of limiting certain uses that would typically use outdoor display, such as automobile dealerships or plant nurseries, from locating in these areas. If some outdoor display is wanted, the section could apply a limit by using a maximum square metres or a maximum percentage of the lot as a measure.

Special Requirement - Parking

16.4 (a) Notwithstanding Section 6.16 of this Bylaw, Parking and Loading Requirements, in the C-2 zone, Council may accept a cash payment in lieu of the required parking spaces in accordance with the following formula: **amount of payment = (a x 18.5 sq. m. x b) + (b x 50)** where:

- a = assessed value of land per sq. m.
- 18.5 = number of square m. in each parking space
- b = number of required parking spaces
- 50 = cost of constructing one parking space in dollars

(b) A combination of cash and parking spaces may be accepted.

(c) Any cash collected in lieu of parking shall be placed in a special account and used only to provide or improve parking spaces within any commercial zone.

In some cases, it may be desirable to exempt C-2 uses from the Bylaw's parking space requirements. This may be especially true in areas like the downtown where a development pattern has been established. The exemption can be either total or partial depending upon the perceived need.

The cash-in-lieu option offers some flexibility in allowing development to proceed where the usual parking requirements cannot be met. It is not used extensively in the province as it may require the developer to pay a

considerable amount of cash to the municipality before obtaining a development permit. If a municipality were willing to pay a portion for the cost the formula could be adjusted to reflect this.

The subject of parking in downtown areas may require special study. Such things as the size of commercial lots, the existing built-up areas, availability and likelihood of public parking facilities, proximity to residential areas and the level of transit services, if any, needs to be considered. For example, if there is a very limited space available in the downtown and it is characterized by small lots, large parking space requirements may discourage new commercial development.

Part 17

Commercial Highway (C-3)

The Commercial Highway (C-3) Zone is intended to be applied to lands adjacent to the main highways leading into a community. The types of uses most suited to this zone are those that need large amounts of retail floor space, need outdoor display areas, serve the travelling public, and cater to the automobile.

An issue common to this zone is how many of the commercial general uses should be allowed to locate here. In contrast to the C-2 zone which is very broad in its permitted uses, the C-3 zone will be somewhat more restrictive. If a broader array of uses is desired then the commercial general zone can be applied along with the highway commercial zone.

Permitted Uses

17.1 The following uses shall be permitted in the Commercial Highway Zone (C-3):

- (i) automobile, truck and motorcycle sales, service, or rental establishments
- (ii) automobile service stations
- (iii) banks
- (iv) bowling alleys
- (v) curling rinks
- (vi) farmers markets
- (vii) funeral homes
- (viii) garden nurseries and greenhouse establishments
- (ix) hotels and motels
- (x) licensed liquor establishments
- (xi) manufactured home sales centres
- (xii) offices
- (xiii) recreation vehicle sales, service and rental establishments
- (xiv) restaurants
- (xv) retail stores
- (xvi) theatres, including cinemas
- (xvii) uses permitted in the Institutional (I) zone

C-3 Zone General Requirements

17.2 The following requirements apply to all uses:

Requirement	Standard
Minimum lot area	
Minimum lot frontage	
Minimum front yard	

Requirement	Standard
Minimum rear yard	
Minimum side yard	
Maximum building height	15 m. (50 ft.)
Maximum lot coverage	

A function of the C-3 zone is to avoid undue restriction of traffic flow. This suggests fairly large minimum lot size and frontage requirements (for example 1000 sq. m. in area and 30 m. in frontage). Another important requirement is the front yard setback. It is often kept fairly large to avoid crowding or massing of buildings along the street and to maintain safe highway sight distances. The driveway access provisions of Section 6.6 will come into play here limiting driveway access on arterial and collector streets to one every 30 metres. The minimum frontage requirement should not be less than that.

Special Requirement - Open Storage and Outdoor Display

- 17.3 (a) In the C-3 zone, outdoor storage shall be:
- (i) located in the rear yard only;
 - (ii) screened from adjacent properties and the street by a fence at least 2 m. in height; and
 - (iii) limited to a maximum of ____ percent of the lot.
- (b) In the C-3 zone, outdoor display areas shall be limited to a maximum of ____ percent of the lot.

Part 18 Industrial Light (M-1)

Industrial uses can create challenges for municipalities because of the scale at which they may operate and the impact they may have on neighbouring uses. Another issue is that industries are usually location sensitive. They quite often need specific locations in order to operate successfully. Quick and easy access to transportation corridors is usually essential, as is adequate provision for water, sewer, and power services.

In many municipalities there are industries whose locations were determined by factors existing at the turn of the century or earlier. Subsequently, they have been encircled by residential or commercial developments. These industries may still be major employers and will probably need to be treated differently than other more modern industries. Harbour related industries obviously need waterfront locations and might be dealt with by having a separate industrial zone.

Industrial parks have become the preferred way of dealing with future industrial needs. They allow municipalities to carefully plan servicing and location issues and prepare for industrial expansion in a controlled way. The park may have its own special zone or it might be zoned for light or heavy industrial use. The decision of which approach to follow will depend largely upon the municipality's overall industrial scheme in terms of the number of industrial sites, their location, and the mixture of uses permitted.

All of the industrial zones in this Model Bylaw are prepared using the assumption that the sites are serviced with sewer and water services. If this is not the case lot standards will have to be adjusted accordingly.

The zone set out here is for light industrial uses. Generally, these are industrial uses that are not considered obnoxious.

Permitted Uses

18.1 The following uses shall be permitted in the Industrial Light Zone (M-1):

- (i) any manufacturing, assembling, storage, or processing plant except those listed in Schedule 'D' of this Bylaw
- (ii) commercial uses accessory to the main use
- (iii) crematoria
- (iv) recycling depots
- (v) research facilities
- (vi) service industries
- (vii) trucking and railway depots
- (viii) utilities
- (ix) wholesale and warehouse facilities

The distinction between light and heavy industries is obvious for some industries but not so obvious for others. The attempt here is to try to make the distinction based on the nature of the use. To simplify the task we have used the Environmental Assessment Act Regulations which specify those industries that will require an environmental assessment. If it requires an assessment, it gets put into Schedule 'D' and will be prohibited in the Industrial Light (M-1) zone. This method is relatively easy and can be adapted to suit the needs of any municipality. For example,

Schedule 'D' would allow bulk storage facilities less than 5000 cubic metres in size in the M-1 zone. If this is considered too large for the M-1 zone it can be changed, in Schedule 'D', to a smaller figure.

It is most likely that a municipality will zone industrial parks for light industrial use. The question then is whether or not to allow commercial uses in industrial parks. Depending on the size of the park there may be a need for some limited commercial uses to support employees working there. This would include such things as restaurants, banks, and convenience stores. In such circumstances commercial uses may be included in the M-1 zone but care should be taken to ensure the park does not become overly commercialized. If this happens, the commercial business may eventually object to having industries located on abutting lots. The preferred approach would be to zone one or two localized areas for commercial use. This would ensure that land for industrial use is maintained while at the same time allowing for supportive commercial uses close by.

In this example commercial uses have been permitted only as accessory use to the main use.

M-1 Zone General Requirements

18.2 The following requirements apply to all uses:

Requirement	Standard
Minimum lot area	
Minimum lot frontage	
Minimum front yard	
Minimum rear yard	
Minimum side yard	
Maximum height of main building	NA
Maximum lot coverage	NA

No suggested numbers have been included here because the standard will vary depending upon the area in which the zone is located and the types of uses permitted. In old industrial areas, where other forms of development have built-up around it, the most desirable standards will likely be impossible to achieve. In new industrial parks though, fairly high standards will probably be appropriate. A maximum building height standard and a maximum lot coverage standard has not been included because these are not usually an issue for industrial uses. They should be included if there is a concern over local fire fighting capabilities (for height) or if certain nonindustrial uses are permitted in the zone.

Special Requirement - Lots Abutting a Nonindustrial Zone

- 18.3 (a) Where a lot located in the M-1 zone abuts a lot in a nonindustrial zone the following standards apply:
- (i) the industrial use shall be setback from the abutting lot line a minimum of ____ m.;
 - (ii) no open storage or sign shall be permitted in the abutting yard; and
 - (iii) no parking or loading space shall be permitted within ____ m. of the abutting lot line.

The abutting zone requirements are designed to protect neighbouring uses from the potential nuisance effect of the industrial use. Items (ii) and (iii) may not be necessary in some situations while in others additional requirements such as fencing and landscaping may be considered appropriate.

- (b) Notwithstanding subsection (a) where the yard of a lot within the M-1 zone abuts a railway line or shoreline, no setback shall be required from the abutting lot line.

Special Requirement - Accessory Commercial Uses

- 18.4 Accessory commercial uses are permitted within the main building or in an accessory building but in any case shall not be larger than 25 percent of the gross floor space devoted to the main use.

Services Required

- 18.5 Developments within the M-1 Zone shall only be located on lots served with central sewer and water services.

The requirement for central services may not be necessary in all circumstances, particularly in rural areas.

Part 19

Industrial Heavy (M-2)

This zone is set-up to deal primarily with uses that involve the processing of raw material and industrial uses that require large areas of land.

Permitted Uses

19.1 The following uses shall be permitted in the Industrial Heavy Zone (M-2):

- (i) any manufacturing, assembly, processing, storage, or transportation facility or plant
- (ii) composting facilities
- (iii) construction and demolition debris facilities
- (iv) electricity production and distribution industries
- (v) landfill sites
- (vi) marine related industries
- (vii) natural gas production and processing industries
- (viii) uses permitted in the Industrial Light M-1 zone

This list could simply say "all industrial uses". As it is, it allows a very broad range of uses. A municipality may wish to deal with some of the more intense uses by development agreement or by setting up a separate zone for them. Alternatively large minimum lot requirements may be appropriate.

Some municipalities may want to set up a separate zone for the handling of municipal waste. This would include everything from landfill sites to composting facilities. More recently construction debris recycling facilities are becoming necessary. Much of this material can be recycled and reused.

The industrial zones are stacked (ie. M-1 uses are allowed in the M-2 zone) because it allows some flexibility for heavy industry to change to a less intense use without requiring a rezoning. It makes a municipality more industry friendly without losing control over the most intense uses. The only danger with this is the heavy industry areas could be overtaken with light industrial uses. If this begins to happen it might be an opportunity to review the industrial policies of the plan and look for areas to expand.

M-2 Zone General Requirements

19.2 The following requirements apply to all uses:

Requirement	Standard
Minimum lot area	
Minimum lot frontage	
Minimum front yard	

Requirement	Standard
Minimum rear yard	
Minimum side yard	
Maximum height of main building	NA
Maximum lot coverage	NA

The general requirements for heavy industrial uses will be fairly large given the nature of the uses permitted. In addition, there may be a need for special requirements such as fencing and landscaping.

Special Requirement - Lots Abutting a Nonindustrial Zone

- 19.3 (a) Where a lot located in the M-2 zone abuts a lot in a nonindustrial zone the following standards apply:
- (i) the industrial use shall be setback from the abutting lot line a minimum of ____ m.;
 - (ii) no open storage or sign shall be permitted in the abutting yard; and
 - (iii) no parking or loading space shall be permitted within ____ m. of the abutting lot line.

In this zone, as in the M-1 zone, the abutting yard requirements may need to be adjusted to include some form of screening.

- (b) Notwithstanding subsection (a) where the yard of a lot within the M-2 zone abuts a railway line or shoreline, no setback shall be required from the abutting lot line.

Special Requirement - Scrap Yards, Composting Facilities, and Construction and Demolition Debris Facilities

- 19.4 In addition to all other applicable requirements any scrap yard, composting facility or construction and demolition debris facility developed within the M-2 zone shall have the outdoor storage areas enclosed with an opaque fence a minimum of 2 m. (6.6 ft.) in height.

Part 20 Industrial Park (M-3)

Most municipalities will want to deal with future industrial expansion using industrial parks or at least setting aside areas where they can be developed. It may be that the industrial park zone will be the only industrial zone needed. Most likely though, there will be existing industrial areas that are not located in an area where industrial expansion is desired. In that case, the existing areas can be spot zoned as either Industrial Light (M-1) or Industrial Heavy (M-2), as appropriate, and the new industrial area zoned Industrial Park (M-3).

It is common practice for municipalities to include commercial uses in their industrial park zones. This can cause problems because, as stated earlier, there is a potential for the park to become overly commercialized. If there is a need for commercial activity in or near industrial parks the general commercial zone should be applied to the appropriate areas. This will provide certainty for the commercial operators as well as the industrial enterprises.

Permitted Uses

20.1 The following uses shall be permitted in the Industrial Park Zone (M-3):

- (i) any manufacturing, assembling, storage, or processing plant except those listed in Schedule 'D' of this Bylaw
- (ii) commercial uses accessory to the main use
- (iii) recycling depots
- (iv) research facilities
- (v) service industries
- (vi) trucking and railway depots
- (vii) utilities
- (viii) wholesale and warehouse facilities

The uses listed here are the same as those for the Industrial Light M-1 zone. If the M-1 zone is also used in the Bylaw this zone could simply say, "any use permitted in the M-1 zone".

Also missing from this list is office buildings. These are quite often seen in industrial parks. They have been left out here because the general philosophy being presented is one where commercial uses belong in commercial zones. Industrial areas should be reserved for industrial uses. If a municipality wants to take a more integrated view they should review the list and include the appropriate uses.

M-3 Zone General Requirements

20.2 The following requirements apply to all uses:

Requirement	Standard
Minimum lot area	
Minimum lot frontage	

Requirement	Standard
Minimum front yard	
Minimum rear yard	
Minimum side yard	
Maximum height of main building	NA
Maximum lot coverage	NA

Special Requirement - Lots Abutting a Nonindustrial Zone

- 20.3 (a) Where the yard of a lot located in the M-3 zone abuts a nonindustrial zone the following standards apply:
- (i) the industrial use shall be setback from the abutting lot line a minimum of ____ m.;
 - (ii) no open storage or sign shall be permitted in the abutting yard; and
 - (iii) no parking or loading space shall be permitted within ____ m. of the abutting lot line.
- (b) Notwithstanding subsection (a) where the yard of a lot within the M-3 zone abuts a railway line or shoreline, no setback shall be required from the abutting lot line.

Special Requirement - Accessory Commercial Uses

- 20.4 Accessory commercial uses are permitted within the main building or in an accessory building but in any case shall not be larger than 25 percent of the gross floor space devoted to the main use.

Services Required

- 20.5 Developments within the M-3 Zone shall only be located on lots served with central sewer and water services.

Part 21

Institutional (I)

This zone is intended for uses that serve society in various ways. Institutions have changed significantly over the years. Orphanages, for example, are no longer being built. Schools and universities have become multi-use centres providing space for public and private meetings, seminars and conventions as well as being places of learning. All of this should be considered when planning for institutional uses.

Increasingly municipalities run into problems when institutional buildings become redundant and no longer needed. Thought should be given to the possible reuse of these buildings.

Some municipalities, particularly smaller ones, include institutional uses as permitted uses in their residential zones. This may be all that is needed if institutional activity is limited.

Permitted Uses

21.1 The following uses shall be permitted in the Institutional Zone (I):

- (i) art galleries
- (ii) centres for the performing arts
- (iii) churches, associated halls and cemeteries
- (iv) community centres
- (v) community service clubs and organizations
- (vi) correctional facilities (including prisons, jails, juvenile detention centres, and half way houses)
- (vii) court houses
- (viii) emergency services facilities (ie: police, ambulance and fire stations)
- (ix) government legislative buildings
- (x) hospitals
- (xi) libraries
- (xii) military bases
- (xiii) museums
- (xiv) nursing homes (including residential care facilities)
- (xv) medical clinics
- (xvi) schools
- (xvii) senior citizen housing
- (xviii) sports facilities (indoor)
- (xix) universities and colleges including related research, office and student facilities
- (xx) veterinary clinics (including animal hospitals)

Some municipalities prefer to include sports facilities with their park zone. This model has taken the view that the park zone will be reserved for uses that do not involve buildings. Where a sports facility involves a building it will be included in the institutional zone.

Only government legislative buildings were included here which would include Town Hall/Municipal Building. Where government occupies office buildings or industrial buildings they should act as any other tenant or owner and should take into consideration the Land Use Bylaw. Provincial and federal governments are not bound by municipal bylaws and their own development policies may take precedence over those of the municipality.

Correctional facilities are included in the list of permitted uses. Because of the controversial nature of these uses it would be wise to review this and determine if a more restrictive regulation would be appropriate.

I Zone General Requirements

21.2 The following requirements apply to all uses:

Requirement	Standard
Minimum lot area	
Minimum lot frontage	
Minimum front yard	
Minimum rear yard	
Minimum side yard	
Maximum height of main building	
Maximum lot coverage	

Some municipalities do not impose any general requirements for institutional uses. Others impose the minimum standards for residential uses. In reality any large scale institutional uses will most likely be developed, owned and operated by senior levels of government. The development of a hospital or a school, for example, will carry with it its own set of standards which will probably be more stringent than any the municipality would impose.

Special Requirement - Lots Abutting Residential Zones

21.3 Where the yard of a lot located in the I zone abuts a residential zone the following standards apply:

- (i) the institutional use shall be setback from the abutting lot line a minimum of ____ m.; and
- (ii) a landscaped buffer shall be provided along the abutting lot line with vegetation sufficient to provide a screen at least 2 m. in height.

Landscaping provisions will require policy support in the strategy.

Services Required

- 21.4 Developments within the I Zone shall only be located on lots served with central sewer and water services.

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Part 22

Park (P)

The park zone is intended to apply to any areas where open space uses (except for parking lots) are to be developed. This would include such uses as parks, playgrounds, public or private golf courses, baseball and soccer fields, campgrounds, and so on. The zone will apply to both public and private land and should allow enough uses to prevent it from becoming an unauthorized prohibition.

Some municipalities may want to separate the public park uses from the private park uses. If so, two park zones could be used.

It is likely that the P zone will be applied only to existing uses so it is important to provide, in the strategy, for an ability to rezone to the P zone from any other zone and to rezone from the P zone should circumstances call for it.

Permitted Uses

22.1 The following uses shall be permitted in the Park Zone (P):

- (i) campgrounds
- (ii) golf courses
- (iii) golf driving ranges
- (iv) marinas
- (v) mini-golf courses
- (vi) sports facilities (outdoor)
- (vii) parks and gardens
- (viii) playgrounds
- (ix) sports fields
- (x) yacht clubs

It is quite common not to require any general development standards in the park zone. Since these are, for the most part, open space uses there is no need to maintain strict control over lot sizes and yards, etc. There should, however, be some limitation placed upon accessory buildings to ensure they do not become too prominent in the development.

Special Requirement - Accessory Buildings or Structures

22.2 Any building or structure erected in the P zone shall be deemed to be an accessory building or structure and in addition to the requirements of Section 6.1 such building or structure shall occupy an area no greater than ___ percent of the total lot area of the use.

Because some of the permitted uses in this zone will generate higher levels of traffic than others it might be appropriate to limit these uses to only collector or arterial streets. If the bylaw does not identify collector and arterial streets the same thing can be accomplished by simply naming the street that the development must have access from.

Part 23

General Development (G)

The General Development (G) zone is typically a rural zone where the use made of land is not a particular issue but there is still a need to impose development standards for health and safety reasons. In this case it may be most appropriate to list those uses that are to be prohibited rather than try to list all of the uses that will be permitted. Uses should be prohibited if they could dramatically change the character of the area in some way. For example, developments such as a major shopping centre or a large industrial plant will make a big difference in a community and as such should be considered more carefully before they are developed. This can be accomplished through the rezoning or development agreement process, both of which will require a public hearing.

Alternatively, a municipality could simply list the uses that would not be permitted as-of-right such as scrap yards or fish reduction plants.

Permitted Uses

23.1 All uses shall be permitted in the General Development Zone (G), **except for the following uses which shall be prohibited:**

- (i) any commercial or industrial use with a gross floor area greater than ____ sq. m. or which occupies a land area greater than ____ sq. m.

The area threshold used should reflect the scale of the existing development pattern in the area as well as what would be appropriate in the future. For example, if the area is mostly made-up of single detached dwellings with perhaps a small corner store, a threshold of 900 sq. m. (10,000 sq. ft.) might be reasonable.

G Zone General Requirements

23.2 The following requirements apply to all uses:

Requirement	Standard with Central Sewer and Water Services	Standard without Central Sewer and Water Services
Minimum lot area		
Minimum lot frontage		
Minimum front yard		
Minimum rear yard		
Minimum side yard		
Maximum height of main building	NA	NA

Requirement	Standard with Central Sewer and Water Services	Standard without Central Sewer and Water Services
Maximum lot coverage	NA	NA

Since this is a zone likely to be applied in a rural area, the general requirements should include standards for on-site servicing. Also, because there are very few restrictions as to the type of use that can be developed, lot sizes and required front side and rear yards become even more important. Minimum lot sizes should be large enough to allow unlike uses to exist side by side (4000 sq. m. or about 1 acre is a suggestion). Side yards should also be large (6 to 15 m. or 20 to 50 ft.) for the same reasons. Even larger setbacks may be necessary for certain agricultural activities such as intensive livestock operations. Any special cases should have policy support in the strategy.

No height or lot coverage regulation has been included here because it was considered unnecessary in a rural setting.

Special Requirement - Setback for Intensive Livestock Operations

- 23.3 Any building, structure or land area used for intensive livestock operations shall be setback from the property line and any watercourse, a distance of ____ m..

Part 24 Rural Resource (RR)

The purpose of the Rural Resource zone is to reserve an area where resource activities can be carried out relatively free from other land use competition. This zone may not be appropriate for all rural municipalities. In areas where soil quality has been assessed as being favourable for agricultural production, it might be desirable to restrict development to agricultural uses only. This would also be in keeping with the Statement of Provincial Interest Regarding Agricultural Land.

Single unit dwellings are also listed as permitted uses here but for obvious reasons their density should be kept low.

Permitted Uses

24.1 The following uses shall be permitted in the Rural Resource Zone (RR):

- (i) resource uses excluding processing plants greater than 450 sq. m. (5000 sq. ft.)
- (ii) single unit dwellings

There are certain uses associated with a resource that could cause concern, even in this zone. Pulp mills or fish reduction plants, for example, may not be considered appropriate and as such have been excluded from the list of permitted uses by way of a size limitation. Such uses can be accommodated in the industrial zones and consideration should be given to allowing these industrial uses close to the resource zone. Alternatively these uses could be allowed in the Rural Resource Zone only by development agreement. The policy allowing this would have to be carefully written to insure people living in the area would not be affected.

Strictly speaking, cutting trees and fishing are not considered developments and therefore are not something that can be controlled through a Land Use Bylaw. But this zone limits other types of development from taking place and in that sense preserves an area for resource activities.

Also, only structures and outdoor storage sites associated with the extraction of mineral and aggregate deposits can be regulated in the Bylaw. There is no municipal authority to control the actual mining of the deposit.

RR Zone General Requirements

24.2 The following requirements apply to all uses:

Requirement	Resource Uses (Structures and Storage Only)	Residential Uses
Minimum lot area	NA	1 hectare (2.5 acres)
Minimum lot frontage	NA	100 m. (330 ft.)

Requirement	Resource Uses (Structures and Storage Only)	Residential Uses
Minimum front yard	15 m. (50 ft.)	6 m. (20 ft.)
Minimum rear yard	15 m. (50 ft.)	6 m. (20 ft.)
Minimum side yard	15 m. (50 ft.)	6 m. (20 ft.)
Maximum height of main building	NA	NA
Maximum lot coverage	NA	NA

Minimum lot size and frontage requirements have been waived for resource uses because they were not needed. These are generally land intensive uses, with the exception of the fishery, and a minimum lot size and frontage is irrelevant.

Lot size and frontage requirements, for residential uses, are suggested to be larger than normal to reduce the likelihood of strip development along existing roads and to preserve as much land as possible for the resource use. The Statement of Provincial Interest on agricultural land will come into play here. The MPS policy and the treatment in this Bylaw must be reasonably consistent with that statement.

Special Requirement - Fish Sheds and Boathouses

- 24.3 Notwithstanding the yard requirements in Section 24.2, the yard requirement is waived for fish sheds and boathouses for that part of the building facing the water.

Special Requirement - Lots Abutting Other Zones

- 24.4 Where the yard of a lot in the RR zone, containing a non-residential structure or storage area, abuts any other zone the abutting yard shall be screened using trees, shrubs or fences or any combination of these, such that any structure or storage area in the RR zone is screened from view from the abutting yard.

These abutting zone requirements are necessary to reduce any negative effect the resource use may have on any neighbouring non-resource land uses. Residential uses found in the RR zone do not have the same protection. The primary function of this zone is to preserve an area for resource activity. Residential uses are secondary to that purpose.

Removal of Topsoil Prohibited

- 24.5 Except where incidental to sod farming operations and plant nurseries, no topsoil shall be removed from any lot within the RR zone.

Because topsoil is fundamental to the ability to carry out agricultural activity the Act does allow municipalities to control its removal provided there is supporting policy in the strategy. It is recognized that not all rural resource areas have good quality soil and this may only apply to certain soil classifications.

Part 25

Watershed (W)

The purpose of this zone is to protect the municipal water supply watershed area. This is another area where a Statement of Provincial Interest has been prepared and must be followed. Obviously the list of permitted uses will be limited to those that will have the least impact upon water quality. (Also see: Municipal Water Supply Watershed Planning - Model Municipal Planning Strategy and Land Use Bylaw and Other Management Tools, prepared by Service Nova Scotia and Municipal Relations.)

A critical part of applying this type of zone is the background study that must be done. Because of the restrictive nature of the standards the numbers must be justified and based upon a scientific study of the watershed.

The Act, in S. 180, allows the municipality to prepare a Protected Water Supply Area Bylaw that would apply to lands owned by the municipality only. In some cases, where the entire watershed is held in public hands, this may be all that is needed. If, however, private land is part of the water supply watershed, the Land Use Bylaw offers the municipality the ability to control private development in a way that also respects the public interest. Generally speaking, private land cannot be prohibited from development except in the circumstances described in S. 220(5)(n)(o) and (p). This Model Bylaw presumes that single unit dwellings located on large lots are an acceptable use of private land. If studies show that even this type of development would be detrimental to water quality, serious consideration should be given to purchasing the land in question.

Another tool that can be used in the protection of a water supply watershed is to apply to the Minister of Environment and Labour to designate the watershed as a protected watershed under the Environment Act.

Permitted Uses

25.1 The following uses shall be permitted in the Watershed Zone (W):

- (i) parks
- (ii) playgrounds
- (iii) single unit dwellings
- (iv) water supply treatment and distribution uses

If there are existing uses that do not fall into any of the permitted use categories they can be included as "existing" uses in the list of permitted uses. If they are not included they will become nonconforming. Of course, it depends very much on what the existing uses are. If they are uses that would be a hazard to water quality they should not be encouraged to stay in the zone and should not be listed as permitted.

W Zone General Requirements for Single Unit Dwellings

25.2 The following requirements apply to single unit dwelling development only:

Requirement	Standard
Minimum lot area	1 hectare (2.5 acres)
Minimum lot frontage	100 m. (330 ft.)
Minimum front yard	6 m. (20 ft.)
Minimum rear yard	6 m. (20 ft.)
Minimum side yard	3 m. (10 ft.)
Maximum height of main building	10.5 m. (35 ft.)
Maximum lot coverage	10%

The development standards for single unit dwellings in this zone are suggested to be quite large to keep density low. There are no standards for the other uses permitted in the zone because they are, for the most part, open space uses. If existing uses are to be permitted and they are not single unit dwellings, the general requirements will have to be adjusted accordingly.

Special Requirement - Setback From a Watercourse

25.3 Notwithstanding anything else in this Bylaw, within the W zone no structure, other than a water treatment or distribution facility, shall be located closer than 30 m. (100 ft.) from a watercourse.

This special requirement provides added security to the quality of the water in the watershed. Thirty metres is suggested but individual circumstances, such as steepness of slope or vegetation cover, may allow for a lesser distance or require a larger one. Because the distance is so large policy support in the strategy is required.

Special Requirement - Retention of Natural Vegetation

25.4 In relation to a development, one hundred percent of the natural vegetation surrounding a watercourse shall be maintained for a distance of 20 m. (65 ft.) back from the shore line.

This regulation is enabled under S. 220(5)(d) but it requires supporting policy in the strategy. Its purpose is to help prevent any sedimentation and erosion of the watercourse shore line when a development is to take place. The 20 metre distance is only a suggestion. Individual circumstances should be studied before any accurate distance can be determined.

Part 26

Holding (H)

A holding zone is intended to be applied to areas of the municipality where all development will be prohibited. It is enabled by S. 220(5)(n) of the Act. Applying a holding zone is very rarely done in Nova Scotia because it is essentially taking away private development rights. The Act is very clear with respect to the reasons for applying such a zone. It can be applied if the cost of providing municipal sewer, water, or stormwater systems would be prohibitive or premature, or if the cost of maintaining new municipal streets would be prohibitive.

A holding zone is not meant to be a permanent way of preventing development from occurring. Its purpose is to give the municipality an opportunity to service lands at a pace it can afford. There must be strong policy explanation in the municipal planning strategy to support this zone. The policy must give a clear intention to service the land at some reasonably certain point in the future.

Permitted Uses

26.1 The following uses shall be permitted in the Holding Zone (H):

- (i) existing uses as listed in Schedule 'C' of this Bylaw

If there are existing uses in the area of the holding zone they should be listed as permitted uses. By listing them as such no other uses can be developed but these can continue as before.

It also may be appropriate to allow single unit dwellings served by existing sewer and water services. This would cover a situation where the holding zone was applied to lands adjacent to existing services. While extending the services may be prohibitive there would be no reason to prevent development of those lots that could be served by the existing services.

It may also be appropriate to restrict subdivision to one lot per calendar year to prevent speculation and control the demand for services.

Part 27

Comprehensive Development District (CDD)

The purpose of the Comprehensive Development District (CDD) zone is to establish where this type of development will take place and what uses will be developed there. This is a unique development option. Most of the actual development will take place through development agreements which are guided by detailed policy in the strategy. The Act does allow for some development to take place as-of-right. This is a new provision in the Act [S. 226(1)(b)] which provides some flexibility for development in these areas. Typically it is applied to a large area of land that is intended to be developed as a unit, in a coordinated way.

Permitted Uses

- 27.1 (a) The following uses shall be permitted in the Comprehensive Development District (CDD) zone only by development agreement and in accordance with policy . . . of the municipal planning strategy:
- (i) commercial general uses
 - (ii) institutional uses
 - (iii) multiple unit dwellings
- (b) The following uses shall be permitted in the Comprehensive Development District (CDD) zone as-of-right:
- (i) single unit dwellings subject to the R-1 Zone requirements
 - (ii) two unit dwellings subject to the R-1 Zone requirements

This list is just an example. The policy in the strategy will normally detail what uses will be placed in the list. The policy may be very specific as to what commercial or institutional uses will be permitted, the density of residential development, and the proportional distribution of the types of residential uses.

There are no development standards here because these will all be part of the development agreements put in place before development permits are issued.

Part 28

Hazard (X)

This zone is intended to be applied to those areas of the municipality where development should not take place due to identified hazards. This type of prohibition is authorized in S. 220(5)(p) of the Act. Typically the zone would be applied to areas susceptible to flooding (the Statement of Provincial Interest on flood risk areas requires this in an identified 1 in 20 year flood plain), steep slopes, wetlands, environmentally contaminated sites and so on.

In some cases resource uses, open space uses or passive recreational uses can be permitted but no buildings or structures can be located in the zone.

Permitted Uses

28.1 The following uses shall be permitted in the Hazard (X) Zone:

- (i) open space agricultural and forestry uses (no buildings or structures are permitted)
- (ii) parks
- (iii) parking lots

Special Overlay Zones

These special overlay zones are not intended to control uses. They are designed to apply one or more additional requirements that are area specific not use specific. The overlay may encompass an area that contains several different zones. Any development will be required to comply to the requirements of the specific zone as well as the requirements of the overlay zone.

The examples presented here are simply used to show the variety of things that may be dealt with in this way. Some municipalities may not have a need for any of the overlays while others may need more or different overlays.

Part 29 Flood Fringe Overlay

The Flood Fringe overlay would normally be applied to the 1 in 100 year floodplain. The federal and provincial governments, through the Canada/Nova Scotia Flood Damage Reduction Program, have mapped five rivers in the province showing their 1 in 20 year floodplain and their 1 in 100 year floodplain. These rivers are: the Salmon and North Rivers, Colchester County, the East River, Pictou County, the Little Sackville River, Halifax Regional Municipality, the Sackville River, Halifax Regional Municipality, and the West and Rights Rivers, Antigonish County. Municipalities with other known flood areas should also use the flood fringe overlay approach if the area prone to flooding has been identified by a study of by historical records.

The Statement of Provincial Interest on Flood Risk Areas will require land use controls similar to what is described here.

Prohibited Uses

29.1 Notwithstanding the permitted uses found elsewhere in this Bylaw, within the area designated as Flood Fringe on Schedule 'A', the zoning map, the following uses shall be prohibited:

- (i) residential institutions such as hospitals, nursing homes, senior citizen housing and similar facilities
- (ii) any use associated with the storage or warehousing of hazardous materials

Placement of Off-Site Fill

29.2 Notwithstanding anything else in this Bylaw, in an area designated Flood Fringe in Schedule 'A', the zoning map, no off-site fill shall be permitted except that required to meet the floodproofing standards found in section 29.3 of this Bylaw.

*Regulating fill will require policy support in the Strategy and can only be done in relation to a development.
S.220(5)(g)*

Floodproofing Standards

29.3 In addition to any other applicable requirements, for a development located in an area designated Flood Fringe on Schedule 'A', the zoning map, the floodproofing standards of either subsection (a) or (b) shall apply.

- (a) No enclosed portion of the structure shall be below the 1 in 100 year flood elevation; or
- (b) Where an enclosed portion of the structure is below the 1 in 100 year flood elevation:
 - (i) there shall be no openings in the external walls of the structure (eg. windows or doors) below the 1 in 100 year flood elevation,
 - (ii) fill shall be placed around the perimeter of the structure to a height not less than the 1 in 100 year flood elevation, for a distance of not less than 3 m. and not greater than 6 m., and
 - (iii) the perimeter of the fill shall be stabilized by fill at a slope of 1 to 1 or by any other floodproofing measure as determined by a qualified engineer.

Part 30

Heritage Conservation Design District Overlay

In Nova Scotia, most municipalities can point to an area or areas within their boundaries that have historical value because of the architectural or cultural significance of the buildings as a group. In such cases municipalities may wish to apply a Heritage Conservation Design District Overlay along the lines of what is set out below. It should be noted, however, that this is not a substitute for the designation of historically significant buildings under the Heritage Property Act.

Historic buildings designated under the Heritage Property Act are protected from demolition or major alteration for a period of one year. A Land Use Bylaw cannot offer the same kind of protection.

The Heritage Conservation Design District Overlay has as its main purpose the control of the design features of both the new buildings to be built in the district and the renovation of existing buildings. All other aspects of development control will be dealt with by the underlying zone.

When applying this kind of district the district boundaries should be carefully considered and justified in the strategy. The best place to draw the boundary line may be along the back property lines. In this way historic streetscapes will not be negatively affected by inappropriately designed buildings or structures from across the street.

This design district will use existing buildings that have already been designated under the Heritage Property Act as historically significant, as models for the design of new buildings. If no such buildings have been designated or if the district is used for other design requirements (ie. design continuity for a waterfront area or a downtown) then more extensive research will have to be done and design guidelines prepared. These can be placed in the Bylaw as a schedule.

Design Standards

30.1 In addition to all other applicable requirements, the following design standards shall apply to all buildings constructed or altered within the Heritage Conservation Design District as shown on Schedule 'A', the zoning map.

- (a) When a development is proposed for new construction, all of the major architectural features of the development shall be similar to those of one of the buildings designated as historically significant pursuant to the Heritage Property Act, R.S.N.S. 1989, c. 199 and amendments thereto, which are located within the Heritage Conservation Design District. Major architectural features shall include:
 - (i) roof shape,
 - (ii) window, porch, verandah and door style,
 - (iii) window area to wall area ratio,
 - (iv) building length to width ratio,
 - (v) exterior cladding,
 - (vi) exterior colour, and
 - (vii) building height.

- (b) Where a renovation is proposed to an existing building, such renovation shall not change the established character of the major architectural features identified in subsection (a) for any portion of the building that is visible from any public property.

Effective design guidelines are very difficult to draft because they must have enough detail to achieve the objective yet enough flexibility to encourage development. In addition, the requirements must be capable of being administered in a simple and efficient manner. In the sample provision, the architectural elements considered most important have been identified and existing heritage buildings have been used as a model. This approach only works, of course, if there are existing heritage buildings located in the area and if they are an appropriate model for the types of uses permitted in the zone. If there are only residential heritage buildings in the area but the zone permits commercial development, it doesn't make sense to require new commercial building to use the residential model. Given the right circumstances though, this approach can offer a simple and effective design control.

When dealing with renovation the concern is to ensure that changes to the exterior of the building do not take away from the established character. The control measures used here would prevent modern renovations to the street facades of older buildings.

An alternative to this approach would be to develop detailed design guidelines using text, drawings or photographs or a combination of all of these and place them in the Bylaw as a schedule. This will take a good deal more work and perhaps require the services of a consultant. The advantage is that a large variety of designs can be used to span the selection of uses that may be available in the zone or zones covered by the overlay.

Regardless of the method used, the requirements must be sufficiently clear that a developer can know exactly what is required in order to obtain a development permit. There must also be clear policy support in the strategy.

Design Standards for Fences and Accessory Buildings

- 30.2 (a) Where a fence is to be erected within the Heritage Conservation Design District it shall be constructed in accordance with the design requirements set out in Schedule ____ of this Bylaw and a development permit shall be required.
- (a) Where an accessory building is to be erected within the Heritage Conservation Design District :
- (i) the exterior cladding of the building shall be of wood clapboard, wood shingles, stone or brick, or a combination thereof, and
 - (ii) it shall have a pitched roof or have a roof type the same shape as the main building on the lot.

Since small things will tend to make a big difference in the Heritage Conservation Design District the design of fences and accessory structures should also be regulated. This provision uses a schedule for fence design which would identify the size and type of fence appropriate for the heritage area. Some research will be necessary but attractive wooden or wrought iron fencing should be capable of meeting most needs.

Other aspects of design that should be considered in this kind of district are signs, street furniture, street lights, garbage bins, overhead wiring, parking lots, and pedestrian circulation. Some of these are a municipal responsibility and will not be regulated in the Bylaw.

A design overlay does not have to apply only to a historic district. It can be applied to any area of the municipality where the exterior appearance of buildings and structures is an issue.

The example presented here is a fairly simple approach to design control but even this may be more than some municipalities are willing to take on. If desired, design control can be implemented in an incremental way with only one or two aspects of the regulation being brought in at a time.

Part 31

Site Plan Approval District Overlay

Site plan approval is a new development control technique that became available to municipalities when the Municipal Government Act took effect, April 1, 1999. Site plan approval allows municipalities to gain control over the site characteristics of a development in addition to controlling the use of the land. Section 231(4) of the Act details what things can be dealt with in a site plan approval process. These include the location of buildings, parking, walkways, landscaping and so on.

In order to establish a site plan approval district the strategy must contain policy support outlining where it will be applied, what uses will be subject to it, what matters will be dealt with, and what criteria will be used to evaluate it. Section 231(2) of the Act specifically prevents single and two unit dwellings from being included in any site plan approval process.

There are a couple of ways to apply these control measures. They can be applied to a specific zone or zones or specific uses within a zone in which case the zone requirements would contain additional standards for site plan approval. As an alternative, and the way it is suggested in this model, the measures can be applied as a separate overlay. The area covered by the overlay may span one or more zone areas and the standards are set out in a separate section of the Bylaw.

When a persons applies for a development permit in a site plan control area they must also submit a site plan showing the details of the site as required by the Bylaw. A statement, on the site plan itself or on a separate attached paper, stating that all work shown on the plan shall be carried out, must be signed by the applicant before the site plan can be approved by the Development Officer.

Uses Subject to Site Plan Approval

- 31.1 Any development located within the Site Plan Approval District, as shown on Schedule 'A', the zoning map, other than single and two unit dwellings, that results in a net floor area of 450 sq. m. (5000 sq. ft.) or more shall be subject to site plan approval.

The example presented for illustration assumes the strategy has set up a policy with the intent of catching any large scale development, in the area of application, for site plan approval.

There may be more than one site plan approval area, each designed to do different things. If so, they should be identified in a way that there can be no confusion between them.

Site Plan Requirements

- 31.2 In addition to any other applicable requirements found elsewhere in this Bylaw, the following requirements shall apply to all uses subject to site plan approval:

Requirement	Standard
Location of parking lot	Any parking lot designed for 5 or more spaces shall be located such that the vehicles are not visible from the street.
Pedestrian walkway	A 1 m. (3 ft.) wide, concrete pedestrian walkway shall be provided from the parking lot to the entrances of the building.
Outdoor lighting	All parking areas and pedestrian walkways shall be provided with sufficient illumination to ensure the safety and convenience of people walking and driving in the area.
Storm water management	The lot shall be graded and provided with a drainage system that will prevent storm water from draining to neighbouring properties.
Landscaping	At least 25% of the lot shall be landscaped using a variety of kinds and heights of vegetation.

Clearly the purpose of the site plan requirements in the example is to prevent the parking lot from becoming the dominant feature of the lot. The standards are quite general and can be accomplished in a number of ways. If the municipality so desired, the standards could be very specific, even requiring a specific tree or a special type of paving etc. However, there is usually some room left to negotiate between the Development Officer and the developer.

Application

- 31.3 Within any site plan approval district, an application for a development permit shall be accompanied by an application for site plan approval including a plan or sketch in sufficient detail to address all of the matters identified in Section 31.2.

The concept of incentive or bonus zoning is enabled by Section 220(5)(k) of the Act. The purpose, as the name implies, is to try to elicit a benefit from a developer in exchange for a bonus that, in most cases, will improve the economics of the project. It is a technique that is usually only attractive to larger centres where they can trade off additional floor space, in the downtown for example, in exchange for additional public amenities such as a swimming pool or tennis court.

The key to successful bonus zoning is to come up with a formula that is fair and realistic given the economic circumstances of the day. The difficulty is that those economic circumstances can change fairly quickly leaving a municipality with a bonus system that is not workable. The amenity requested should be equal in value to the bonus given. If the amenity value is too high compared with the bonus to be achieved by the developer, the developer will most probably ignore the provision. If the bonus is too high in value compared to the amenity being requested, it will tend to undermine the validity of the underlying zone.

There are a number of ways to incorporate bonus provisions into the Land Use Bylaw. If only specific uses are to be permitted to use the bonus provisions they can be identified within the zone and a special bonus provision applied only to those uses. For example, perhaps only commercial office buildings are to be the target for bonus provisions. In the Commercial General zone a special provision dealing with bonus options could be placed into the zone which would identify the use and detail what the bonus options are. The example shown in the Model Bylaw is not use specific. It applies an overlay over the base zone and is aimed at building size. Any building that has reached its maximum building height will be eligible for bonus options.

What ever method is used there must be supporting policy in the strategy and the bonus provisions must be optional for the developer.

Bonus Options

- 32.1 (a) Notwithstanding any other provision in this Bylaw, any building located within the Bonus District as shown on Schedule 'A', the zoning map, shall be eligible for an increase in height of one floor for every 450 sq. m. (5000 sq. ft.) of additional open space to a maximum of ___ stories.
- (b) When a developer chooses the optional bonus provided for in subsection (a) the developer shall clearly indicate the "Bonus Open Space" on the final plans submitted with the application for a development permit.

Part 33

Definitions

The definitions included here are examples only. They define terms used in this Model Bylaw and as such may not be appropriate for every municipality. They should, therefore, be reviewed and changed where necessary to address any specific concerns a municipality may have.

Definitions can be placed at the front or at the back of the bylaw. They are placed at the back of the model because it was thought it may make it a little more user friendly.

The definition section is an integral part of any bylaw. The following list identifies some key rules that may help in formulating definitions that are brief, informative, and as easy to read as possible:

- (a) only terms used in the text of the bylaw should be defined;
- (b) only terms that are ambiguous or unclear need to be defined;
- (c) do not regulate using the definition;
- (d) a definition must be consistent with the MGA;
- (e) when ever possible a definition should be written in positive terms.

General Definitions

33.1 In this Bylaw all words carry their customary meaning except for those words and phrases defined as follows:

1. **Accessory Building or Structure** means a subordinate building or structure on the same lot as the main building, devoted exclusively to an accessory use;
2. **Act** means the Municipal Government Act, S.N.S. 1998, Chapter 18 and amendments thereto;
3. **Artisan Workshop** means a building used for the production of, or the production and sale of, works of art or crafts made by hand;
4. **Auto Body Repair Shop** means a building used for the repair of body work, detailing and painting of automobile bodies;
5. **Automobile Service Station** means a building or a clearly defined space on a lot used for the sale of lubricating oils and gasoline and may include the sale of automobile accessories, space for the repair of automobiles, a car wash facility, and a convenience store;
6. **Bed and Breakfast Establishment** means a single unit dwelling in which the resident supplies, for compensation, not more than ___ rooms for the temporary accommodation of the travelling public;

7. **Boarding or Rooming House** means a single unit dwelling in which the resident supplies, for compensation, either room or room and board in not more than ____ rooms, exclusive of those for the resident and family, and which is not open to the travelling public;
8. **Bylaw** means this bylaw which is the Land Use Bylaw for (this municipality);
9. **Campground** means an area of land used for the temporary accommodation of recreation vehicles, tents and trailers used for travel, recreation, and vacation purposes but does not include a manufactured home park;
10. **Centre for the Performing Arts** means a building designed for the production and performance of live theatre, radio, television, and motion picture production and may include a theatre school, set construction workshop, and storage facilities;
11. **Church** means a building dedicated to any religious worship and includes an associated hall or residence on the same lot or an adjacent lot;
12. **Clerk** means the Municipal Clerk for (this municipality);
13. **Convenience Store** means a retail store that serves the primary needs of the adjacent neighbourhood and includes the sale of magazines, confectionary items, grocery items and may include a snack bar and dry cleaning drop-off depot;
14. **Day Care Centre** means a building where up to ____ children or adults are cared for on a daily basis, for compensation, without overnight accommodation, but does not include a school;
15. **Development** includes the erection, construction, alteration, placement, location, replacement, or relocation of, or addition to, a structure and a change or alteration in the use made of land or structures;
16. **Development Officer** means the person or persons appointed by Municipal Council to administer this bylaw;
17. **Dwelling** means a building, occupied or capable of being occupied as a home, residence, or sleeping place by one or more persons, containing one or more dwelling units, and shall not include a hotel, motel, apartment hotel, recreation vehicle, or travel trailer;
18. **Dwelling, Grouped** means two or more dwelling units which are contained within two or more buildings located on a single lot;

19. **Dwelling, Semidetached** means a completely detached building containing only two dwelling units that share a common side wall;
20. **Dwelling, Single Unit** means a completely detached building containing only one dwelling unit;
21. **Dwelling, Two Unit** means a completely detached building containing only two dwelling units;
22. **Dwelling Unit** means one or more habitable rooms designed or intended to be used by one or more individuals as a separate and independent housekeeping place in which separate kitchen and sanitary facilities are provided for the exclusive use of such individual or individuals, with a private entrance from outside of the building or from a common hallway or stairway inside the building;
23. **Existing** means legally existing on the effective date of this bylaw;
24. **Farm Market** means a retail store in which farm produce, crafts and baked goods make up the major portion of the items offered for sale;
25. **Fill** means natural earth or gravel material deposited on a lot to alter the land level and contour of the lot;
26. **Floor Area, Net Commercial** means the total floor area within a building used for commercial purposes but excludes washrooms, utility and mechanical rooms, and storage rooms;
27. **Height, Maximum** means the highest allowable distance from the ground level next to the main entrance of the building to the highest point of the building, exclusive of any accessory roof construction such as a chimney, antenna, or mechanical equipment enclosure;
28. **Home Occupation** means the accessory use of a dwelling for gainful employment involving the production, sale, or provision of goods and services, on a small scale;
29. **Intensive Livestock Operation** means an agricultural operation consisting of only one type of livestock in which at least 30 animal units are confined to feedlots or barns for feeding, breeding, milking, or holding for egg production. One animal unit is equal to:

-1 cow with calf,	-50 chickens,
-1 bull or steer,	-25 female mink or fox (plus associated males and kits),
-1 horse,	-25 rabbits (plus males),
-4 hogs,	-1 bee hive,
-4 sheep or goats;	

30. **Landscaping** means the use of any combination of horticultural elements, decorative stone work, paving, fencing, or other architectural elements to enhance the visual quality of a property or to provide a visual barrier between one property and another;
31. **Loading Space** means an area of land reserved for the temporary parking of a commercial vehicle where merchandise or materials are loaded or unloaded;
32. **Lot** means a parcel of land described in a deed or as shown on a registered plan of subdivision; - **Corner lot** means a lot situated at the intersecting corner of two or more streets; - **Flag lot** means a lot located on the interior of a block with access provided by a driveway running beside the lot at the front of the block; - **Interior lot** means a lot abutting only one street the full width of the lot; - **Through lot** means a lot that is not a corner lot that abuts two streets; (See Figure 2)

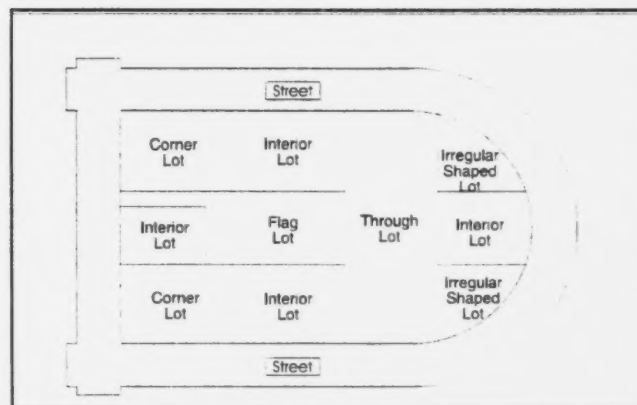


Figure 2

33. **Lot Area** means the total horizontal area within the lot lines of a lot; **Minimum lot area** means the smallest allowable area a lot can be created;
34. **Lot Coverage** means the percentage of the lot that is covered by buildings, also known as the building footprint; **Maximum lot coverage** means the largest allowable area that can be covered by any building or buildings on a lot;
35. **Lot Frontage** means the length of a line between the two side lot lines measured at the front of the lot; **Minimum lot frontage** means the shortest allowable distance lot frontage can be measured;

36. **Main Building** means the building on a lot in which the principal use of the lot is carried out;
37. **Manufactured Home** means a dwelling unit designed for transportation after fabrication, whether on its own wheels or a trailer, and which arrives at the site where it is to be occupied as a dwelling, complete and ready for occupancy (except for minor unpacking and assembling operations to place the building on an acceptable foundation), and having a width of not more than 6 m. (20 ft.), but does not include a travel trailer or a recreational vehicle;
38. **Manufactured Home Park** means a lot on which spaces are provided for more than one manufactured home dwelling unit and includes any accessory service and recreation buildings;
39. **Municipality** means (this municipality);
40. **Nursing Home** means a licensed residential institution where nursing and supervisory care is provided along with full room and board for individuals who are mentally or physically unable to look after themselves;
41. **Off-Site Fill** means fill that is brought into an area subject to flooding from a location outside of that area;
42. **Open Space** means an area of land on a lot not covered by buildings, structures, trees, shrubs, or gardens;
43. **Open Storage** means the outdoor storage of merchandise, goods or inventory of any kind, materials, equipment, or other items not intended for immediate sale;
44. **Outdoor Display** means the display of goods or merchandise in the open air which are available for sale to the general public from a retail store on the same lot;
45. **Parking Lot** means an open area of land devoted to the temporary storage of motor vehicles;
46. **Person** includes an individual, association, firm, partnership, corporation, organization or group and includes any person legally representing these;
47. **Private Street** means any street that is not public shown on an approved plan of subdivision;
48. **Qualified Person** means a person qualified as a QP1 or a QP2 under the Regulations Respecting the Installation of On-Site Sewage Disposal Systems made pursuant to the Environment Act;

49. **Recycling Depot** means a collection site for materials in a municipal recycling program but does not include a scrap or salvage yard;
50. **Residential Care Facility** means a licensed residential institution where 24 hour supervisory care or personal care is provided for four or more persons but does not include a nursing home, correction facility or a hospital;
51. **Resource Uses** means any use involving the processing or storing of natural resource materials including but not limited to agricultural, forestry, fishing and mining resources and shall include the production of agricultural products and the keeping of farm animals;
52. **Scrap Yard** means an area of land used for the storage, handling, processing, and sale of scrap materials including but not limited to scrap metal, vehicles, tires, car batteries etc. but shall not include hazardous waste materials;
53. **Senior Citizen Housing** means a multiple unit dwelling designed for occupation by senior citizens and is constructed and maintained by a public housing authority or non-profit organization;
54. **Shopping Centre** means a group of commercial uses that have been designed and developed as a continuous unit and characterized by shared parking facilities and may or may not have enclosed common walkways;
55. **Sign** means any structure or device, whether illuminated or not, used to advertise or draw attention to any product, place, person, business, institution, organization, or event, including any directional or way finding purpose, and which is greater than 0.3 sq. m. (3.5 sq. ft.);
56. **Sign Face** means the area of a sign upon which the message is placed;
57. **Sign, Ground** means a sign supported by one or more posts, poles, or braces placed in or upon the ground;
58. **Sign, Mobile** means a sign designed and intended to be moved from one site to another and is not permanently affixed to the ground or a building but shall not include the side, body, or trailer of a commercial motor vehicle;
59. **Sign, Projecting** means a sign that projects from and is supported by the wall of a building;
60. **Sign, Sandwich** means a self supporting, two sided, A-frame style sign that is not affixed to the ground;

- 61. **Strategy** means the Municipal Planning Strategy for (this municipality);
- 62. **Street, Local** means a street designed to serve vehicular traffic in residential neighbourhoods;
- 63. **Street, Collector** means a street designed to move vehicular traffic from residential neighbourhoods to commercial and institutional areas and to arterial streets;
- 64. **Street, Arterial** means a street designed to move large volumes of vehicular traffic between major centres;

Local, collector and arterial streets could also be defined by the number of vehicles they are designed to carry per day.

- 65. **Utility** means any public or private system, works, plant, equipment, or services which are provided at regulated rates to or for the use of the general public;
- 66. **Yard** means an open uncovered space on a lot next to a main building;
- 67. **Yard, Flanking** means the side yard of a corner lot that abuts the side street line;
- 68. **Yard, Front** means a yard extending across the full width of a lot between the front lot line and the nearest wall of any main building; **Minimum front yard** means the smallest allowable distance a front yard can be measured;
- 69. **Yard, Rear** means a yard extending across the full width of a lot between the rear lot line and the nearest wall of a main building; **Minimum rear lot** means the smallest allowable distance a rear yard can be measured;
- 70. **Yard, Side** means a yard extending from the front yard to the rear yard of a lot between the side lot line and the nearest wall of a main building; **Minimum side yard** means the smallest distance a side yard can be measured;
- 71. **Zone** means a designated area of land shown on the zoning map for which specific development control regulations are applied.

Schedule A - The Zoning Map

The Zoning Map is the most important map in the Bylaw. It is a precise visual display of where various developments can take place within the plan area. Map scale should be large enough to show all zoned areas but not so large that it makes the map unmanageable. If the planning area is such that only an extremely large map can be used the map could be divided into sections and bound together in an atlas format. Otherwise the map should be folded and put into an envelope attached to the Bylaw.

The use of tones or patterns to identify the various zones is not recommended. If more than four tones or patterns are used it becomes difficult to tell them apart.

Zone boundaries should be accurate enough to enable distances to be scaled from the map if necessary.

The legend should include:

- ▶ *the title - Schedule A Zoning Map (and the name of the planning area)*
- ▶ *a north arrow*
- ▶ *the map scale*
- ▶ *the zone names and their symbols*
- ▶ *the planning area boundary mark*
- ▶ *the zone boundary mark.*

No sample Zoning Map is included in this model.

Schedule B - Street Classification Map

The Street Classification Map is not necessary for every municipality. It is useful to include this map if certain developments are to be restricted to certain types of streets or if certain standards will apply to developments on certain types of streets. For example, this model has applied a varying distance for driveway access depending upon the type of street the driveway has access to. (S. 6.6)

No sample Street Classification Map is included in this model Bylaw.

Schedule C - Existing Permitted Uses

Listing existing uses as permitted uses in the zone is becoming a more common planning approach. It is a way of dealing with existing uses that are out of place in their zone but are not so bothersome that they warrant a nonconforming use status. As the name implies, these uses are permitted only by virtue of their being in existence on or before the effective date of the bylaw.

Because of the unusual status of these uses it is important to accurately identify them. This is accomplished by listing them in a Schedule in the Bylaw or they can be listed in the zone itself. The list should identify the use and its address or other identifying feature such as a Property Identification Number.

A schedule such as this is not mandatory but it makes the administration of the Bylaw much simpler in the event of a dispute.

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Schedule D - Industrial Uses Not Permitted in the M-1 Zone

This is the Schedule referred to in Section 18.1. It lists those uses that must be considered for an environmental assessment under the Nova Scotia Environmental Assessment Act Regulations.

- ▶ All facilities for the manufacture, processing, or reprocessing of radioactive materials or other dangerous goods;
- ▶ heavy water plant;
- ▶ pulp and paper mill;
- ▶ petrochemical plant;
- ▶ cement plant;
- ▶ oil refinery;
- ▶ metal smelter;
- ▶ ferro-alloy plant;
- ▶ non-ferrous metal smelter;
- ▶ dismembering-rendering plant;
- ▶ bulk storage facilities with a total capacity of over 5000 cubic metres intended to hold liquid or gaseous substances such as hydrocarbons or chemicals;
- ▶ facilities for the chemical treatment of timber resources;
- ▶ facilities engaged in the production of fish meal.

Section 5.7

Municipal Water Supply Watershed Planning: Model Municipal Planning Strategy & Land-Use By-law and Other Management Tools

Introduction

Service Nova Scotia and Municipal Relations retained Jacques Whitford Environment Limited to prepare a model municipal planning strategy and land-use by-law for watershed management. That work was carried out with the assistance of planning staff of the Municipality of the County of Annapolis.

Reference guide for
municipal: planners,
CAOs/clerks, elected
officials and others

This document is based on that work and is intended as a reference guide for Nova Scotian municipal planners, municipal clerks/CAOs and elected officials developing policies and regulations concerning watershed management for municipal drinking water supplies. The objective of the document is to provide guidance so that a municipality can more easily and effectively protect a municipal water supply watershed. Although primarily designed for municipalities embarking on a watershed management process, it is also hoped that it may persuade others that it is a doable and worthwhile process.

The document identifies various policy approaches and regulatory tools available, especially under the *Municipal Government Act* (MGA). Particular emphasis is on planning documents (i.e. municipal planning strategies, land-use by-laws and subdivision by-laws), although other tools are discussed.

A key part of this reference guide is a detailed example or model of a municipal planning strategy (MPS) and land-use by-law (LUB) dealing solely with a water supply watershed area. It is intended to show that planning for the protection of a water supply need not be overly complex or difficult.

Statements of
Provincial Interest

This reference guide is in keeping with and should be used in conjunction with the:

- *Statement of Provincial Interest Regarding Drinking Water* (MGA - Schedule B) & the
- *Implementation Guidelines - Statements of Provincial Interest - Guideline 1 - Drinking Water* (Section 5.1 of the *Local Government Resource Handbook*).

Local Government
Resource Handbook

Other documents also found in the *Local Government Resource Handbook* (LGRH) which may be used in concert with this reference guide are:

- *MPS & LUB Preparation* (Section 5.2),
- *Development Control Techniques* (Section 5.3), and
- *Model LUB* (Section 5.6).

MGA - Information
Bulletins

As well, Service Nova Scotia and Municipal Relations has prepared "Information Bulletins" relative to the land-use planning process under the MGA which may be of assistance. These are found in the MGA Resource Binder. They are:

- *Citizen Participation* (#28),
- *Adopting Planning Documents* (#25), and
- *Ministerial Approval of Planning Documents* (#21).

All of the above mentioned documents are available through the Service Nova Scotia and Municipal Relations website at www.gov.ns.ca/snsmr/

The Municipal Services Division of Service Nova Scotia & Municipal Relations is also available to advise and assist with respect to matters discussed in this reference guide.

This municipal water supply watershed management planning reference guide is divided into four parts:

- Part 1 - Watershed Protection - The Basics
- Part 2 - Watershed Protection - The Process
- Part 3 - Model MPS & LUB - Municipal Water
Supply Watershed
- Part 4 - Other Tools

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Part 1 - Watershed Protection - The Basics

What is a municipal water supply watershed?

A municipal water supply watershed is "an area encompassing a surface watershed or recharge area, or portion of it, serving as a water supply area for a municipal water system" (*Statement of Provincial Interest Regarding Drinking Water*).

Reference guide
focuses on surface
water supply
watersheds

This reference guide focuses on watersheds of surface water supplies (i.e. lakes and rivers). This means the area of land within which the water from rain, snow and other sources flows eventually to a common lake or river which forms the source of a municipal water supply. The terms - catchment area, or drainage or river basin - are also sometimes used instead of watershed.

This document does not specifically address ground water supplies (wells) and their recharge areas (land area from which water is absorbed into and supplies the groundwater), since they are more difficult to delineate. However, much of the material in this guide including the various type of control measures talked about can be applied to groundwater supplies as well.

Why protect a water supply watershed?

Demonstrate
"due diligence"

Public expectations with respect to water quality, especially the safety (as well as water quantity) of drinking water have increased in recent years. Accordingly those responsible for these water supplies, such as municipalities, must show "due diligence" in protecting their municipal drinking water.

Municipalities may employ various measures "from the water source to the tap" to safeguard water quality. These include: source water protection, water treatment & water system management, and water monitoring & testing. Employing safeguards at all of these stages is referred to as the "multiple barrier" approach.

"Source to tap"
protection

Protecting municipal water supply watersheds is an essential first step in the supply of clean, high quality drinking water. Municipalities that have a watershed serving as a source of potable water for their own residents or for those of a neighbouring municipality have an obligation to ensure that land-use activity is not allowed to impair the quantity and the quality of the water from the watershed. Where the watershed is owned publicly

Land-use planning
an important tool

by the municipality, it is a fairly easy task to regulate or prohibit development and monitor the activities that take place within the boundaries of the watershed. Where there is private land ownership the job becomes more difficult. The municipality must balance the basic development rights of the property owner with the necessity to maintain high quality water within the watershed.

What tools does a municipality have?

Land-use planning is one of the main tools available to municipalities. It is a powerful yet cost effective way of dealing with concerns about development and its impact on a drinking water supply. Under the MGA, a municipality has primary authority for land-use planning in its jurisdiction, and is empowered to adopt planning documents, to carry this out.

A municipal planning strategy (MPS) is the policy document and it may deal with a broad range of matters with respect to a municipality's physical, as well as the economic and social, environment. Adopting policy to limit the type and amount of development permitted in a drinking water supply watershed is one example.

To regulate land-use in light of such MPS policy, the MGA enables a municipality to adopt a land-use by-law (LUB) and use the various development control tools - zoning, development agreements and site plan control. These documents may be very basic and deal solely with a municipal water supply watershed area. Alternatively, they may cover a larger area, even the entire municipality and be very complex.

Other MGA tools

Still, there are other, non-regulatory powers, available to municipalities under the MGA to assist in protecting a drinking water supply, including: land purchase and public education programs.

Protected Water
Area designation

Other legislation, such as the *Environment Act*, which provides authority to designate a Protected Water Area (PWA), can also be utilized by a municipality when developing a management strategy for its drinking water supply.

This document focuses mainly on planning documents - the MPS and LUB. However, it also touches on these other tools (in Part 4), such as those mentioned above, that are available to complement them.

What is the - Statement of Provincial Interest on Drinking Water?

Adopted under the MGA to protect the quality of drinking water

The provincial government has recognized that municipal drinking water supplies are a resource fundamental to the physical, social and economic well-being of many Nova Scotians. Accordingly, it adopted a *Statement of Provincial Interest Regarding Drinking Water (Statements)* under the MGA to protect the quality of drinking water within municipal water supply watersheds. This *Statement*, as well as the others adopted under the MGA, serve as guiding principles to help government officials, municipalities and individuals in making decisions regarding land-use.

MGA provisions sections 193 - 198

The MGA requires that new municipal planning documents or amendments to existing ones, must be "reasonably consistent" with a *Statement of Provincial Interest* [MGA - section 198(1)]. The *Statement* on drinking water requires municipalities to identify municipal water supply watersheds in their municipal planning documents and include strategies for their protection.

Implementation Guidelines

Service Nova Scotia and Municipal Relations has prepared an *Implementation Guideline* on this *Statement*, as a tool to further assist municipalities when preparing their planning documents. This *Implementation Guideline* is found in section 5.1 of the *Local Government Resource Handbook*.

The items discussed in this document, in particular the Model MPS and LUB for a Municipal Water Supply Watershed, are consistent with the intent of this *Statement*.

Part 2 - Watershed Protection - The Process

As with any planning process there are some key steps. Here is a listing of what those steps might be:

- Step 1 - organize planning project framework,
- Step 2 - gather information/data,
- Step 3 - analyze information/data and identify issues,
- Step 4 - prepare the plan (MPS/LUB, management plan), &
- Step 5 - adopt/implement the plan.

The process as noted above may not be appropriate in all situations, but it does give an idea of what is involved in a planning exercise.

Below is a discussion of this five step planning process. The level of detail of the planning exercise is a decision of the municipality.

Step 1

Organize planning project framework

A first step in the process is to answer some basic questions about the planning exercise for the water supply watershed. Here are some things to consider:

- **Plan Area:**

Does the planning area comprise only the watershed itself or is it part of a program that covers a larger area?

If the watershed is in a remote rural area, there is little development, and no land-use planning and regulation exists or is anticipated anywhere near the watershed, it may be most practical to limit the exercise to the watershed alone. In contrast, if the watershed adjoins a built-up area and there is a MPS & LUB in effect, or the municipality is considering a plan and by-law for the entire municipality, then it may be better to include it as part of this broader exercise.

It is not unusual for a municipal water supply watershed to extend into or be located entirely in a separate municipality. This is often the case where a town has a central water system and the watershed is in the adjacent county/district municipality. Municipal cooperation in these cases is critical.

Is this a conventional MPS & LUB or a more comprehensive management strategy?

What expertise is needed and who will be involved?

Are planning consultants or other experts required?

What expertise and interest is there in the community (e.g. an environmental or watershed group)?

- **Product:**

There are numerous factors which influence whether a municipality prepares a comprehensive watershed management strategy or a traditional MPS & LUB. One is whether the plan area is limited to the watershed alone or covers a larger area, perhaps even the entire municipality. If the latter, then a conventional MPS & LUB is more likely. A second factor is what resources are available, and this includes financial, staff and community expertise. Where a municipality has limited resources a more basic product, such as a MPS & LUB may be more appropriate, at least in the short term. A third is the type and severity of the issues and how quickly the exercise must be completed. For example, if a municipality is concerned about residential development which is quickly encroaching on a municipal water supply watershed, it may want to get a MPS & LUB in place as soon as possible. Later it might consider a more comprehensive strategy of which the MPS & LUB is a component. The decision about the type of product is typically made at the onset of the project, however, in some situations this may be left until somewhat later in the process when the information and issues are better known.

- **Planning Team:**

The composition of the planning team will be influenced by the complexity of the watershed, the comprehensiveness of the project and product (e.g. basic MPS & LUB or comprehensive strategy), as well as other circumstances with respect to the municipality itself. For example, does the municipality have staff with the technical knowledge and resources to carry out this exercise? The municipality should decide, early on in the process, who is going to be involved in this planning exercise and what is the role of the team as a whole as well as the individuals themselves. For example, is this going to be a technical team, a steering committee, or is there a need for both. It may be appropriate that this planning team is the municipality's planning advisory committee (PAC) as enabled under the MGA (Section 200)[see also MGA Information Bulletin #28 *Citizen Participation*]. Where the watershed is located totally or partially in an adjacent municipality, there should be members on the team that represent the interests of that municipality.

Step 2

The discussion below regarding the other steps in this planning process will also help show what is involved in such an undertaking, and therefore what other resources a municipality may require to effectively carry this out.

Gather Information/data

One of the key aspects of any planning exercise is assembling appropriate, and accurate background information. In the case of water supply watershed planning and management this is certainly critical. Like many planning exercises this would entail gathering information, such as:

Natural and man-made environment of the watershed

- natural environment: geology, soils, slopes, vegetation, and hydrology, and
- man-made environment: roads, land-use (i.e. residential, commercial, industrial, recreational, agricultural, forestry, extractive), and property ownership.

Water data and management practices

Since watershed planning and management is principally concerned about water quality and quantity and any real or potential threats to this, the information gathering process might also deal with:

- water data: historical water quality, surface water currents, stormwater inputs, and trophic status, and
- management practices: current management practices, that is the policies, procedures and practices in place that (may) affect water quality or quantity.

Maps and GIS

Most of this information would be assembled and displayed on maps in order to demonstrate the location of the various factors. In light of today's technology, the information is often compiled and presented in a digital form, for example using a geographic information system (GIS), although this is not essential.

Who will gather the data?

If the municipality has the staff capability, it may choose to compile this information on its own. However, it may be desirable or necessary to contract out some or all of this work to planning, engineer or resource management consultants. Some of this information/data may be accessible from provincial government departments such as Department of Agriculture and Fisheries, Department of Environment & Labour, Department of Natural Resources and Service Nova Scotia & Municipal Relations.

Step 3

Issues differ from one watershed to another

'Point' and 'non-point' sources

Issues in a watershed may include some or all of these, as well as others

Analyze information/data and identify issues

Compiling this information is really only the first step. The more important part is analyzing the data to reveal what significance this has for water quality and quantity in the watershed currently and what to expect in the future. Since each municipal water supply watershed is unique in terms of its natural and man-made environment, this also means that the types and magnitude of the issues in a watershed differ. For example, in the case of an undeveloped and remote watershed, normally the issues are few and the threats very low. However, for watersheds in which development currently exists, or where new development is expected, this is typically not the case. This analysis should address both known and potential 'point' (i.e. originate from specific sources such as an industry or a sewer outfall) and 'non-point' sources (e.g. carried to the water supply source through stormwater runoff, such as sediment and fertilizer) of contamination (pollution). It might also deal with other possible effects on the watershed, such as increased stormwater runoff.

Here are examples of some possible concerns and potential sources:

- **siltation/sedimentation**
 - residential/commercial/industrial etc. - land clearing and construction practices associated with new development
 - agriculture - soil erosion from exposed farm fields
 - forestry - soil exposure during logging operations
 - extraction - topsoil, peat or minerals
 - roads - construction of new roads
- **bacteria**
 - livestock operations (manure)
 - on-site sewage disposal systems
 - pet waste
- **pesticides / herbicides / insecticides /fungicides**
 - farm fields
 - tree plantations
 - residential properties
- **toxic substances** (e.g. engine oil)
 - parking lots
 - auto service stations
 - salvage yards
 - roadways (spills & highway accidents)
- **salt**
 - public & private roads
 - driveways
 - parking lots

This is not intended to be a complete listing, but only touches on some possible key issues that may arise.

Information with respect to some of these issues may be available from government departments.

As with the task of compiling the information/data, a municipality may seek the services of a consultant to assist with this. The responsibilities of the planning team in this part of the exercise will vary, and depend on the role assigned and agreed to by the municipality.

Step 4

Prepare the plan

Who will prepare the plan?

As with the previous step, the "plan" may be prepared by municipal staff or by outside consultants. The type and scope of this product is determined at or near the outset of the exercise and may be a conventional MPS and LUB or a broader management strategy of which the planning documents are a component. In cases where a consultant is the primary author, municipal staff would normally review and provide input before the plan/strategy is adopted. Interest groups and the general public in the municipality would also typically be provided with an opportunity to comment on the plan/strategy at some point(s) during its development. With respect to a MPS & LUB, the MGA (Section 204) requires that a municipality adopt a public participation program indicating how it intends to seek the opinions of the public on proposed planning documents. As with other planning documents a municipality is encouraged to forward a draft of any MPS and LUB to SNSMR for comment.

How will the public be involved?

Step 5

Adopt/implement the plan

Municipal council adopts the plan or strategy

Regardless of who prepares the watershed plan/strategy, it is the responsibility of the municipal council to adopt it. If the strategy is a comprehensive watershed management strategy package, those aspects other than the MPS & LUB (eg. emergency response plan, forestry management plan) are adopted according to the requirements of MGA, Part 7 (Section 168 - 170) for by-laws, or Part 3 (Section 48) in the case of policy. A MPS & LUB, whether part of a comprehensive watershed management strategy, or simply stand-alone conventional planning documents, are adopted by a municipal council in the manner prescribed in Part 8 of the MGA [also see MGA Information Bulletin #25, *Adopting Planning Documents*].

Intermunicipal
planning strategy

Where the municipal water supply watershed is located within more than one municipal jurisdiction and the municipalities are working cooperatively to prepare a management plan, the MGA (Section 215) enables the municipalities to adopt a mutually binding intermunicipal planning strategy. Where the intermunicipal planning strategy contains policies regulating land-use, the municipalities each then adopt a land-use by-law (or amendment the existing land-use by-law) for their own jurisdiction (MGA Section 219(1)) to implement the policy.

Part 3 - Model MPS & LUB - Municipal Water Supply Watershed

Basic example or model of a conventional MPS and LUB

What follows is an example or model municipal planning strategy (MPS) and land-use by-law (LUB) that deals solely with water quality protection in a municipal water supply watershed. This example is written as if it were an actual MPS & LUB in order to give an idea of how these documents are formatted and how they work together.

Local Government Resource Handbook

This is a basic example of a conventional MPS and LUB. [For more information about developing a MPS & LUB see the 'how to' guide entitled *Municipal Planning Strategy and Land-Use By-Law Preparation* in the *Local Government Resource Handbook* (LGRH) (Section 5.2)]. The example or model below uses standard "as-of-right" zoning as the development control tool in the LUB. [For more information about the LUB see the 'how to' guide entitled *Model Land-Use By-Law* in the LGRH (Section 5.6)]. However, a municipality could use other development control tools, such as development agreements. [For more information about this see the 'how to' document *Development Control Techniques* in the LGRH (Section 5.3)].

MGA 'Information Bulletins'

The model below provides an example of the format and content of a MPS and LUB. It does not address the process aspect of developing a MPS and LUB. Vital to any planning program is the involvement of the people that will ultimately be affected by what is finally adopted. Without their support and understanding the program will not be successful. For more information about process, refer to the following "Information Bulletins" in the MGA Resource Binder: *Citizen Participation* (#28), *Adopting Planning Documents* (#25), and *Ministerial Approval of Planning Documents* (#21).

For the purposes of this exercise a fictitious lake (Lake Thomas in Gainsborough County) and a fictitious town (Mayfair) are used in the model to illustrate the concepts.

In the model, comments found in a box like this are intended as explanation only and are not meant to be part of the strategy or by-law itself.

- The Lake Thomas Watershed Municipal Planning Strategy -

Part 1 - Background

Authority:

This Municipal Planning Strategy and accompanying Land-use By-law are legal documents prepared pursuant to the Municipal Government Act c. 18, SNS 1998. The strategy is an expression of land-use policy for the Municipality of the County of Gainsborough with respect to the use and development of land within the Lake Thomas watershed.

Lake Thomas and its surrounding watershed is the only source of drinking water for the town of Mayfair. The lake also supplies water to three neighbourhoods just outside of the town boundaries.

This Municipal Planning Strategy and the accompanying Land-use By-law are prepared in conformance with the Statement of Provincial Interest Regarding Drinking Water adopted by the Province of Nova Scotia in 1998.

Purpose:

The purpose of this Municipal Planning Strategy and Land-use By-law is to protect and preserve the quality of water in Lake Thomas and its surrounding watershed through the use of land-use regulation and development control.

Context:

This part of the strategy would describe the lake and the watershed giving its size, topography, rates of flow, any unusual characteristics and so on. A watershed study should be conducted, by a qualified person, giving sound scientific and technical information specific to the watershed. This part would also describe what, if any, existing development is located within the watershed and the size and extent of the land holdings, as well as what development may be expected.

Part 2 - Goals

The overall goal of this strategy is to control land-use activity within the Lake Thomas watershed to the extent necessary to ensure water quality guidelines adopted by the Province - (i) *Guidelines for Canadian Drinking Water Quality*, and (ii) *Canadian Environmental Quality Guidelines* - are maintained.

A secondary but equally important goal is to introduce a public awareness campaign to explain to all residents of the municipality the effect that they can have on water quality and steps they can take to make sure they are not the cause of any impairment.

Part 3 - Lake Thomas Watershed Policy Statements

Land-use Policy

Designating the Lake Thomas watershed is an important first step in developing watershed land-use policy for the municipality. The designation will form the basis of further policy and serve as a framework for the necessary land-use control measures to be introduced.

Policy 1. It is the policy of Municipal Council to designate the entirety of the Lake Thomas watershed, as described in (the engineering study) and shown on Map 1, the Generalized Future Land-use Map, as Water Supply Watershed.

Applying to the Minister of Environment & Labour to designate the watershed as a Protected Water Area under the *Environment Act*, if it become necessary, allows for further control of activities that may impair water quality. These would include such things as forestry activity and recreational use of the lake itself.

Policy 2. It is the policy of Municipal Council to monitor activities in and around Lake Thomas and if deemed advisable apply to the Minister of Environment & Labour to take steps to designate the Lake Thomas watershed as a Protected Water Area under the *Environment Act* and apply appropriate regulations for its protection.

There are some activities that can occur in the watershed that a land-use by-law cannot control. Forestry activity, for example, is not a development and cannot be controlled by the land-use by-law. Also, swimming, boating, fishing, hiking and so on, are activities that can have a significant impact upon lake water quality but cannot be controlled by the land-use by-law.

Development within the watershed will be limited to single unit dwellings, parks and playgrounds and water utility uses. It is recognized that there is no sewer collection system in the area but properly functioning and maintained septic systems in low densities should not pose any health risks. Monitoring and septic system education will be a key to ensuring no future problems arise.

Policy 3. It is the policy of Municipal Council to apply a Watershed (W) Zone to the area designated Water Supply Watershed on the Generalized Future Land-use Map and to allow single unit dwellings, parks, playgrounds and water utility uses as permitted uses.

Because the land within this watershed is private property there must be some basic as-of-right development permitted. The Municipal Government Act does not allow for a total prohibition of development of private land except in very limited and specific situations - S. 220(3) and S. 220(5)(n),(o) and (p).

Policy 4. It is the policy of Municipal Council to apply development standards to any residential development within the Watershed (W) Zone that are sensitive to the special needs of the zone. In that regard minimum lot area and frontage requirements will be larger than normal in order to keep density low.

Development standards are applied only to residential uses because these are the only uses that will involve a structure of any size that will be privately owned. If other uses are to be permitted the policy and regulation will have to be adjusted accordingly.

An important part of the protection of water quality in the lake itself is the retention of vegetation around the lake shore and any streams or rivers that feed it. This will be accomplished by requiring a buffer area, that cannot be disturbed, around all watercourses.

Policy 5. It is the policy of Municipal Council to further protect the watercourses within the Watershed (W) Zone by requiring a large buffer area around all watercourses within which no structure, other than those related to the water utility, may be constructed and no vegetation may be removed.

The size of this buffer area will depend very much on the topography of the land surrounding the watercourse. This will be determined by the watershed study that will have to be done at the outset.

Administrative Policy

Policy 6. It is the policy of Municipal Council to adopt a Land-use By-law, concurrently with the adoption of this Municipal Planning Strategy, to carry out the land-use intents as described in the policy.

Policy 7. It is the policy of Municipal Council to appoint a Development Officer to administer the Land-use By-law in accordance with the policies of this Municipal Planning Strategy and the requirements established in the Municipal Government Act.

Policy 8. It is the policy of Municipal Council to review this Municipal Planning Strategy and if deemed advisable, replace it or amend it as the case may be:

- when an amendment to the Land-use By-law is requested that is contrary to the policies of this strategy,
- when an amendment to or a new Statement of Provincial Interest is adopted that would result in this strategy no longer being in conformance with said statement,
- at any time, at the request of any member of Council, and
- not later than five years from the date of adoption.

Policy 9. It is the policy of Municipal Council, during the review of this Municipal Planning Strategy, to hold at least one public information meeting at which all stakeholders and interested citizens of the municipality can be fully informed as to the proposed change or changes as the case may be.

Policy 10. It is the policy of Municipal Council to undertake an extensive public awareness campaign to inform the general public and in particular land owners within the Lake Thomas watershed of the best management practices when living and partaking in recreational activities in and around Lake Thomas.

Some municipalities may want to charge a fee for the administration of the land-use by-law. This would be done through an application fee for a development permit. Also, if someone applied to have the land-use by-law amended, a fee could be charged to cover the required advertising costs. If fees are to be charged it should be stated in policy. A fee schedule can be attached to the land-use by-law. In areas where development activity will be very low, as would be the case here, charging a fee may be more trouble than it is worth.

- The Lake Thomas Watershed Land-use By-law -

Since this is a single issue municipal planning strategy and land-use by-law the land-use by-law portion will not be as detailed as one would normally be.

Title and Purpose

1.1 This By-law shall be known as the Land-use By-law for the Lake Thomas Watershed and shall apply to all lands within the boundaries of the Lake Thomas watershed as described on Schedule "A", the Zoning Map.

1.2 The purpose of this By-law is:

- (a) to carry out the land-use development policies found in the Lake Thomas Watershed Municipal Planning Strategy; and
- (b) to establish a fair and systematic means of development control for the planning area.

Administration

2.1 The Development Officer shall administer this By-law.

2.2 (a) Unless otherwise stated in this By-law, no person shall undertake a development on a lot within the Lake Thomas planning area without first obtaining a development permit from the Development Officer.

(b) The Development Officer shall only issue a development permit in conformance with this By-law except where a variance is granted or in the case of a nonconforming use or structure in which case a permit shall be granted in conformance with the Municipal Government Act.

(c) A development permit shall be valid for 12 months from the date issued if the development has not commenced.

(d) The Development Officer may revoke a development permit where information provided on the application is found to be inaccurate.

2.3 Unless otherwise specified, no development permit shall be required for:

(a) a development that involves the interior or exterior renovation of a building that will not change the shape of the building or increase its volume, will not add more dwelling units or otherwise intensify the use of the building, or will not involve a change in use of the building;

(b) a fence or wall that does not exceed two (2) metres (6 ft. 6 in.) in height; and

(c) an accessory building less than 20 square metres (216 sq. ft.) in area.

The Act clearly enables a municipality to set out in its LUB 'developments for which a development permit is not required' (Section 244(2)).

The 20 square metres referred to in clause (c) is also the size threshold in most building by-laws at which a building permit would be required.

It should be noted that even though the development of some uses may not require a development permit the development is still required to be in compliance with the LUB.

2.4 (a) Every application for a development permit shall be accompanied by a sketch or plan, in duplicate, drawn to an appropriate scale and showing:

(i) the shape and dimensions of the lot to be used;

(iv) the distance from the lot boundaries, dimension, and height of the building or structure proposed to be erected;

(v) the distance from the lot boundaries and size of every building or structure already erected on the lot and the general location of the buildings on abutting lots;

(vi) the proposed location and dimension of any parking space, loading space, driveway, and landscaped area;

(vii) the proposed use of the lot and any building or structure; and,

(viii) any other information the Development Officer deems necessary to determine whether or not the proposed development conforms to the requirements of this By-law.

- (b) Where the Development Officer is unable to determine whether the proposed development conforms to this By-law, the Development Officer may require that the plans submitted under clause (a) be based upon a survey certified and stamped by a Nova Scotia Land Surveyor.

2.5 The application for a development permit shall be signed by the registered owner of the lot or by the owner's agent duly authorized in writing to act for the owner.

2.6 This By-law shall take effect upon the date of publication.

The date of publication is simply the date the notice advertising, that the new By-law or amendment is in effect, is printed in the local newspaper.

Zone and Zoning Map

3.1 For the purposes of this By-law one zone shall be applied to the entire planning area:
- Watershed (W) Zone.

3.2 Schedule "A" is the Zoning Map and forms part of this By-law.

Interpretation

4.1 (a) In this By-law, words used in the present tense include the future, words in the singular number include the plural, words in the plural include the single number, the word "used" includes "arranged to be used", "designed to be used" and "intended to be used", and the word "shall" is mandatory.

(b) All official measurements are in metric. Where imperial measurements are provided they are for information purposes only.

4.2 (a) In this By-law any use not listed as a permitted use in the zone is prohibited in that zone unless otherwise indicated.

(b) Where a permitted use within the zone is defined in this By-law the uses permitted in the zone include any similar uses that satisfy such definition except where a definition specifically excludes any similar use.

General Provisions

5.1 (a) An accessory building or structure is permitted and may be used only as an accessory use to the main building or use, but it shall not:

- (i) be used for human habitation except where a dwelling is an accessory use;

- (ii) be built in the front yard of any lot;
 - (iii) be built closer than __ metres to any lot line;
 - (iv) be built within __ metres of the main building.
- (b) Notwithstanding anything else in this By-law, awnings, clothesline poles, flag poles, garden trellises, retaining walls, signs, and fences shall be exempt from any requirement under subsection (a).
- (c) Unless otherwise provided in this section, no accessory building or structure shall be constructed:
- (i) prior to the time of construction of the main building to which it is accessory, or
 - (ii) prior to the establishment of the main use of the land where no main building is to be built.

5.2 No building shall be erected or used unless it is erected on a single lot.

5.3 (a) Nothing in this By-law shall exempt any person from complying with the requirements of any other By-law of the municipality or from obtaining any license, permission, permit, authority, or approval required by any other By-law of the municipality or any regulation of the Province of Nova Scotia or the government of Canada.

(b) Where the provisions of this By-law conflict with those of any other By-law of the municipality or regulation of the Province or the government of Canada, the higher or more stringent provision shall prevail.

Watershed (W) Zone

6.1 The following uses shall be permitted in the Watershed Zone (W):

- (a) parks and gardens
- (b) playgrounds
- (c) single unit dwellings
- (d) water supply treatment and distribution uses.

It is almost inevitable that there will be existing uses that do not fall into any of the permitted use categories indicated above. These uses may be handled in a variety of way. Often the approach taken relates to the degree of risk to water quality posed by the uses themselves. Uses that do not pose a significant risk, for example two unit dwellings, could be treated as "existing permitted uses". They are permitted to continue and may expand according to the zone requirements. These uses should be clearly identified in the by-law (e.g schedule to the by-law) so that there is no argument in the future as to their existence. These uses can be listed by using property identifiers such as the PID number, assessment number or the civic address. Uses that may pose a greater risk, like certain commercial uses, could also be listed as permitted uses, but

with additional limitations on their ability to expand. A development agreement may be an appropriate development control tool for this purpose. (See section 5.3 of the Local Government Resource Handbook for details on Development Control Techniques.) For those existing commercial or industrial uses that pose a significant risk, for example those that use, store, or in any way incorporate hazardous materials in any process, they should be made nonconforming and encouraged to relocate from the watershed. As non-conforming uses they would be prevented from any form of future development (See Municipal Government Act sections 238-242).

6.2 The following requirements apply to single unit dwelling development only:

Requirement	Standard
Minimum lot area	1 hectare (2.5 acres)
Minimum lot frontage	100 m. (330 ft.)
Minimum front yard	6 m. (20 ft.)
Minimum rear yard	6 m. (20 ft.)
Minimum side yard	3 m. (10 ft.)

The development standards for single unit dwellings in this zone are suggested to be quite large to keep density low. There are no standards for the other uses permitted in the zone because they are, for the most part, open space uses. If existing uses are to be permitted and they are not single unit dwellings, the general requirements will have to be adjusted accordingly.

6.3 Notwithstanding anything else in this By-law, within the W zone no structure, other than a water treatment or distribution facility, shall be located closer than 30 metres (100 ft.) from a watercourse.

This special requirement provides added security to the quality of the water in the watershed. Thirty metres is suggested but individual circumstances, such as steepness of slope or vegetation cover, may require a larger distance or allow for a reduced one.

6.4 In relation to a development, the natural vegetation surrounding a watercourse shall be maintained for a distance of 20 metres (65 ft.) back from the shore line.

This regulation is enabled under S. 220(5)(d), but it requires supporting policy in the strategy. Its purpose is to help prevent any sedimentation and erosion of the watercourse shore line when a development takes place. The 20 metre distance is only a suggestion. Shorelines with steep slopes, for example, may require a wider natural vegetation buffer. Individual circumstances should be studied before specific distances are determined. Also, rather than an outright ban on removal of any natural vegetation in the buffer area, consider establishing a percentage of existing natural vegetation that must be maintained, for example 90%.

Definitions

- A. **Accessory Building** means subordinate building or structure on the same lot as the main building devoted exclusively to an accessory use;
- B. **Accessory Use** means a use customarily subordinate and incidental to a main use of land or building and located on the same lot;
- C. **Development** includes the erection, construction, alteration, placement, location, replacement or relocation of, or addition to, a structure and a change or alteration in the use made of land or structures;
- D. **Development Officer** means the person appointed by the municipal council in accordance with the *Municipal Government Act* and charged with the duty of administering the provisions of this By-law;
- E. **Dwelling** means a building occupied or capable of being occupied as a home, residence, or sleeping place by one or more persons, containing one or more dwelling units, and shall not include a hotel, motel, apartment hotel or a travel trailer;
- F. **Dwelling, Single Unit** means a completely detached building containing one dwelling unit;
- G. **Lot** means a parcel of land described in a deed or as shown on a registered plan of subdivision;
- H. **Lot Area** means the total horizontal area within the lot lines of the lot;
- I. **Lot Frontage** means the length of a line joining the side lot lines and parallel to the front lot line;
- J. **Main Building** means the building within which is carried out the principal purpose for which the lot is used;
- K. **Watercourse** means any lake, river, stream, ocean or other body of water;
- L. **Watershed** means the Lake Thomas watershed;
- M. **Water Supply Treatment and Distribution Uses** means any building, structure or facility necessary to provide municipal water services;
- N. **Yard** means an open uncovered space on a lot next to a building and unoccupied by a structure except as specifically permitted elsewhere in the By-law;

- O. **Yard, Front** means a yard extending across the full width of a lot between the front lot line and the nearest wall of the main building on the lot. The **minimum front yard** means the minimum depth allowed by this By-law between the front lot line and the nearest wall of any main building on the lot;
- P. **Yard, Rear** means a yard extending across the full width of a lot between the rear lot line and the nearest wall of the main building on the lot. The **minimum rear yard** means the minimum depth allowed by this By-law between the rear lot line and the nearest wall of any main building on the lot;
- Q. **Yard, Side** means a yard extending from the front yard to the rear yard between the side lot line and the nearest wall of the main building on the lot. The **minimum side yard** means the minimum depth allowed by this By-law between the side lot line and the nearest wall of the main building on the lot.

Part 4 - Other Tools

Here are some other tools that a municipality may use in order to more effectively manage its municipal water supply watershed. These may be used in conjunction with a MPS and LUB or on their own.

Land Ownership

Municipality may acquire land by various means under the MGA

A municipality may acquire land within a water supply watershed [MGA - Section 50(5)]. The power to acquire land is not limited to lands within the municipality itself. If necessary a municipality may acquire land by way of expropriation [MGA - Section 52] and again this can apply to lands within another municipality. As well a municipality can receive land as a gift or by way of a trust [MGA - Section 50(1)].

Where the municipality owns the land in the watershed it has the ability to prepare a by-law which would regulate activities such as swimming, camping, cutting of trees, fishing, and so on [MGA - Section 180].

Land acquisition often important in a management plan

Land ownership provides the municipality with the greatest degree of control over uses and activities in the watershed. Still, the biggest drawback to land acquisition is often the cost. In any case, land acquisition should be a key component in the overall management plan for a water supply watershed.

Designation Under the Environment Act

Protected Water Area Designation

Section 106 of the *Environment Act* gives the Minister of Environment & Labour the power to designate any area surrounding a water supply source as a Protected Water Area (PWA). This is done only at the request of the operator of the water works. This is usually the municipality, although in some cases this may be a separate water commission. Along with the designation the Minister can impose regulations that would prohibit or regulate any activities that may impair water quality within the area designated. This typically means activities such as swimming, forest harvesting, road construction, and application of pesticides.

Education

A critical part of any watershed management scheme is public education. Section 65(al) of the MGA gives a municipality the power to spend money on its water system, and this can include funding public education about protecting the water supply watershed. This education program

Public education programs can take many forms

may be limited to those who live or work in a water supply watershed. However, it may also include water supply users and the general population as well. People need to be aware of what the issues are in a water supply watershed and how an individual's activities and actions can affect water quality.

Some of the issues that often need to be addressed in a public education program are: on-site sewage disposal (septic) systems, home landscaping practices, development along the shoreline, vegetation retention, use of pesticides and fertilizers, and the recreational use of the lake.

Some of these matters are addressed in more detail in Appendix "A" - Best Management Practices for residential and recreational areas.

Appendix A - Best Management Practices

Best Management Practices (BMPs) are widely accepted approaches, procedures, or actions which, in the case of municipal water supply watershed, are intended to minimize human impact on the natural environment.

BMP objectives for water supply watersheds

BMPs for municipal water supply watersheds share many of these common objectives:

- minimize pollution threats;
- minimize soil erosion;
- minimize vegetation loss; and
- reduce storm water runoff volumes and velocities.

Here are some suggested Best Management Practices with respect to a few of the issues that can affect a watershed: on-site sewage disposal systems, landscaping and waterfront recreational practices.

On-site Sewage Disposal (Septic) Septic System Best Management Practice

Failing septic systems can pose serious health risks

Residential on-site sewage disposal (septic) systems are perhaps the most troublesome aspect of dealing with land-use activity within a water supply watershed. Failing septic systems can pose serious health risks. Hepatitis, dysentery, and other diseases may be spread by bacteria, viruses and other parasites in waste water. Inadequate treatment of waste water can also allow excessive nutrients to reach lakes or streams, promoting algae or weed growth. Algae blooms and abundant weeds not only make it unpleasant for swimming and boating, they also affect water quality for fish and wildlife habitat.

A properly constructed and maintained septic system should not be a problem. Here are several best management practices that can be used to keep a septic system in good working order.

- Discharge all sewage waste from the house into the septic tank. Do not run waste water from the laundry directly into the drainfield as the detergent or soap scum will quickly clog soil pores and cause septic system failure.
- Do not add "starters" to the septic system. Enough bacteria are available in the waste flushed into the septic tank. Even after the tank has been pumped, enough bacteria will be provided when the system is used again.

Pump septic system regularly

- Do not use additives in the system. They are of no benefit and may cause harm to the system.
- Pump the septic system every year to remove solids and scum. Annual pumping is excellent insurance for systems in a watershed.
- Remove the manhole cover when pumping the system to make sure that all solids have been removed. The sludge in the tank should be mixed during pumping. A tank cannot be adequately cleaned through a four inch inspection pipe.

Landscaping Best Management Practice

Minimize exposure of bare soil

- Keep the site covered. Any disturbance of ground cover (grass or shrubs) will expose soil. This leads to erosion and slope failure. Use hay or straw as much as possible to cover disturbed areas after re-seeding. A good rule of thumb is one 50 pound bale (22.5 kg) per 500 square feet (45 sq. m.). Consider working only in small areas and stabilizing that site before working on another.
- Minimize disturbance to plants and trees. Select and save trees to gain time in landscaping later. Large trees, especially birch, can be killed by heavy traffic that compacts the soil. Putting fill material too deeply over root areas can also kill trees.

Maintain vegetation buffer

- Maintain a buffer zone of natural vegetation along the banks of lakes and streams. The best filter strip is mature woodland with undisturbed grass and shrub layers.
- Establish permanent cover. After the grounds have been graded to minimize and control runoff, the next step is to plant a permanent cover on all areas that have been disturbed. Trees and shrubs are excellent at protecting soil from rain and are practical erosion control measures. Use native species of trees and shrubs where ever possible. They are well adapted to our climate, insects and diseases and create a natural, low maintenance landscape.

Plan for runoff from roads and driveways

- Plan roads and driveways to take advantage of the natural contours of the area. Where steep slopes cannot be avoided consider putting in "water bars". These small, raised ridges on the road surface help to divert runoff water to road ditches rather than allowing it to run the entire length of the slope.

Minimize use of
pesticides and
fertilizer

- Avoid the use of chemical pesticides. If they must be used consult a professional to determine which pesticide to use and how much can safely be applied.
- Nitrogen is a fertilizer for rich green lawns and gardens but it is a very mobile nutrient. Attention must be paid to the amount applied and the timing to eliminate the possibility of water contamination.
- Yard waste such as leaves, grass clippings, fruit and vegetable waste should never be permitted to enter the water. These materials contain phosphorus and may contribute to the degradation of surface water quality.

Waterfront Recreational Best Management Practice

Maintain the
natural shoreline

- Maintain a buffer zone. Do not alter the natural shoreline.
- Avoid burning on the beach. The remaining ash is highly alkaline and may change the pH of the lake which will promote the growth of undesirable plants.
- Use a diving platform or raft instead of developing a beach for swimming.
- Do not wash or urinate/defecate in the lake.
- Do not use motorized boats on the lake.

Placement of Natural Gas Pipelines in Roadways

1.0 INTRODUCTION

Service Nova Scotia and Municipal Relations commissioned a study entitled "Study to Provide Nova Scotia Municipalities with Information/Issues/Standards (Best Practices) in reference to placement of natural gas pipelines in municipal roadways. The study was undertaken in two distinct parts:

Part 1 information, collection and assembly of data on practices within other jurisdictions;

Part 2 formulation of a model policy and/or specifications on gas pipeline placement which can be used as a guide to the Municipal Units in Nova Scotia.

This document outlines background data and puts forth recommendations of a model bylaw on gas pipeline placement. The recommendations are based on the survey and discussions with personnel in the gas distribution business.

The information contained herein represents the best practices from municipalities across Canada with respect to the placement of low pressure gas distribution pipe within municipal street rights-of-way. Any Nova Scotia municipality contemplating developing such a bylaw will find this information useful. Some modification of the standards may be necessary to accommodate local circumstances.

2.0 BACKGROUND

2.1 Jurisdictional Responsibility

The transmission and/or distribution of natural gas in Nova Scotia is under the jurisdiction of the Nova Scotia Utility and Review Board. The following acts and regulations outlines the requirements relative to the transmission and distribution of natural gas.

- Public Utilities Act
- Pipeline Act
- Pipeline Regulations (Nova Scotia)
- Gas Distribution Act
- Gas Distribution Regulations (Nova Scotia)

and other associated amendments to the acts and regulations. These documents are available



2.2 Survey Questionnaire

A survey questionnaire was undertaken throughout Canada, concentrating on input from Municipal Units and Gas Distributors. In addition, telephone conversations were held with various personnel involved in the gas distribution business. The questionnaire is included in Appendix A. The general conclusion is that the location of the pipeline must be a joint effort by the Gas Distributor and the Municipal Unit.

The following summarizes the comments received from the various interviews:

- the distribution of natural gas falls under provincial utility review boards or similar structures. The minimum standards for design, installation etc. for oil and gas pipeline systems are in accordance with the Canadian Standards Associations CSA Z-662. Franchise and/or right-away agreements form the legal document for installations within municipal units between the Municipal Unit and the Gas Distributor. In addition to the franchise agreements guidelines are established by some municipal units addressing the technical issues of installations within street systems. Gas distributors have standards and specifications that are used as "in-house" documents by the gas distributor. A draft model franchise agreement from the Ontario Energy Board is included in Appendix B. Included in Appendix B also are:
 - Municipal Service Systems Part A: Design Guideline of the Halifax Regional Municipality; and
 - Guidelines for Construction of Natural Gas Mains Within The Municipality of the City of Fredericton.
- the practice of placement of gas distribution lines in street systems is not consistent across the country. Generally there are differences in accepted locations relative to the pressure – that is: for high pressures versus low/medium pressure lines. The practice also varies in some jurisdictions by road classification; that is, gas distribution is not allowed in arterial streets in some Municipal Units. Streets/roads that are under the provincial government jurisdictions also have restrictions, with no distribution lines within TCH 100 series. The Guidelines for Installation of Pipelines on TPW Right-of-Ways from the Nova Scotia Transportation and Public Works are included in Appendix C.
- the accepted position of gas distribution lines on roadways/streets are very variable across the country. Generally the location of pipes are preferred to be installed within the right-of-way but outside the asphaltic surface. However, due to the congestion in many urban streets the locations have to be adjusted to accommodate existing conditions resulting in installations both within and outside the asphaltic surface. In some jurisdictions, the planning



incorporates lanes, at the rear of lots where services are installed. The preferred locations are 1 metre outside the asphaltic concrete; within the area of 0 to 3 metres inside the edge of the right-of-way; under boulevards; between the edge of the asphalt surface and the sidewalk. Under sidewalks is not preferred due to the initial and on-going costs. Examples of the location of the gas pipes relative to the property line (PL) and relative to other services are shown on the sheets in Appendix D. These sketches are from Municipal Units in other jurisdictions. The following sheets are included:

Source: The City of Calgary:

- Sheet 5 - Residential - Parking Both Sides (showing gas pipe in easement with alternative in the asphaltic surface).
- Sheet 6 - Collection (showing gas pipe in easement with alternative under the asphaltic surface).
- Sheet 13 - Undivided Major (showing gas pipe adjacent property line or under the asphaltic surface).
- Sheet 15 - Standard Industrial Street (showing gas pipe adjacent property line or under the asphaltic surface).
- the approval process for the location of services is through the Municipal Unit, with approvals through the municipal engineer. The location is generally a joint effort between the municipal engineer and the gas distributor. In these areas where the highways are under the jurisdiction of the provincial highways, the approval is through the Provincial Highway Department.
- the drawings to be submitted for approval vary from province to province. In all cases plans are required, showing the right-of-way, curbs etc., the existing utilities and the proposed alignment. For local distribution the plans are generally on a scale of 1:500 to 1:1000. For steel pipe (higher pressure) plan and profile are sometimes required. Some municipal units, where GIS is utilized, have the gas distribution information placed on the GIS municipal system and submitted for approval.
- services are installed using both conventional and trenchless technology depending on the geological conditions.
- the depth of bury of services is in accordance with the CSA Standards and the requirements of the municipal unit, whichever is the more stringent; the depth of bury from the survey implied depths varying from 600 mm to 1200 mm, with the deeper depths for steel pipe within the shoulder of the road. Gas pipes placed in the ditch system require deeper depths of cover due to the on-going maintenance in ditch systems.



- technical specifications are developed by the gas distributors for installation procedures. The backfill and compaction criteria is in accordance with the municipal requirements for utility services and/or the specifications for asphaltic services where installed within the asphaltic surfaced area. Standard specifications for municipal services are used where the municipal units do not have their own specifications such as the Standard Specification for Municipal Services, Nova Scotia Road Builders and Consulting Engineers of Nova Scotia. The timing for upgrades or placement of gas lines are coordinated with the capital investment/reinvestment of municipal units on the street systems. The Municipal Unit in some jurisdictions submit planned upgrades to the street system for the coming year(s) to the Gas Distributor. The Gas Distributor can then coordinate their activities with the proposed capital works and reduce the impact on the pavement structure.

2.3 Design Considerations

The design of the gas distribution system is governed by minimum standards as detailed in the CSA Standards - Z662 - Oil and Gas Pipeline Systems. These standards establish the design criteria relative to class of pipe, design standards for components, joints, sleeves, flexibility/stress analysis, crossings; installation procedures; pressure testing; corrosion control; operating, maintenance and upgrading; gas distribution systems; material specifications etc. Specialty Section 12 - Gas Distribution Systems address the distribution aspects of the system. The design must meet the minimum requirements of CSA Z662 as outlined in the Gas Distribution Act. Clause 12.4.5 Cover and Underground Clearances is of significance to the municipalities relative to acceptance of layout and interference relative to existing infrastructure. The applicable sections of the standard are quoted below relative to cover requirements:

12.4.5 Cover and Underground Clearance

12.4.5.1 Cover Requirements

12.4.5.1.1

Cover requirements for underground piping and casings shall be 60 cm unless otherwise required or allowed by clauses 12.4.5.1.2 to 12.4.5.1.4 inclusive. Where underground structures or adverse subsurface conditions prevent installation with the minimum cover, it shall be permissible to install such pipelines with less cover, if they are provided with appropriate protection.

Note: *Where erosion or other factors are likely to reduce the cover over a distribution line, consideration should be given to additional depth of cover or other means of protection.*



12.4.5.1.3

For polyethylene pipelines with standard dimension ratios greater than SDR 11, cover requirements shall be determined by calculations in order to ensure that stresses due to external loading are within acceptable levels.

12.4.5.1.4

Service lines shall be installed at depths that will protect them from excessive external loadings and local activities, such as gardening. A minimum of 30 cm of cover shall be provided in private properties and a minimum of 45 cm of cover shall be provided in roads, except that where such cover requirements cannot be met due to existing substructures, less cover shall be permitted, provided that:

- such portions of such service lines subject to excessive superimposed loads are either cased or
- adequate protection from physical damage is provided.

12.4.5.2 Underground Clearance

The following underground clearance requirements shall apply:

- Where practicable, there shall be at least 30 cm of clearance between any pipeline and any other known underground structure that it parallels, but in no case shall the clearance be less than 5 cm.
- Where practicable, there shall be at least 5 cm of clearance between any pipeline and any other known underground structure that it crosses; where a clearance of at least 5 cm is not practicable, the pipeline shall be protected from damage that might result from the proximity of the other structure.
- Precautions shall be taken to prevent electrical contact with, or the imposition of external stresses from or on, any other underground structure.
- Sufficient clearance shall be maintained, or mitigative measures installed, between polyethylene pipelines and steam lines, hot water lines, power lines, and other sources of heat, in order to prevent the temperature of such pipelines from exceeding the limits specified in Clause 12.4.2.2.1.

3.0 RECOMMENDED PRACTICES AND GUIDELINES

3.1 General

Practices and guidelines are noted below relative to the issues that are addressed at the Municipal Unit, rather than at the Nova Scotia Utility and Review Board. The practices and guidelines are a compilation of "best practices" that have been taken from the interview process, guidelines by other jurisdictions, accepted practices in the industry and standards including CSA Z662-99 Oil



and Gas Pipeline systems; Technical Standards and Specification Manual for Gas Distribution Systems, Alberta Energy Utilities Branch; City of Calgary – Street Details, City of Fredericton Guidelines for Construction of Natural Gas Mains Within the Municipality; Halifax Regional Municipality, and Municipal Service Systems Guidelines.

3.2 Approvals

- (1) The Municipality shall be the authority for the approval of the location of all portions of the gas distribution system within municipal streets. In accordance with clause 78 of the Public Utilities Act:

"No public utility shall, in any city or town, erect or place in, upon, along, under or across any street, road or highway, any pole, wire, conduit or pipe, without first obtaining the consent of the council of such city or town..."

However, in accordance with the Gas Distribution Regulation of the Gas Distribution Act the Gas Distributor can refer the decision to the Nova Scotia Utility and Review Board:

Clause 4 "If pursuant to Section 78 of the Public Utilities Act, a municipality does not consent to the construction requested or gives consent that is unacceptable to the Franchise Holder, the matter shall be referred by the Franchise Holder to the Board."

- (2) Where the distribution systems falls within highways or roads under the jurisdiction of the Department of Transportation and Public Works, approval from the Department of Transportation and Public Works is required.
- (3) The Gas Distributor shall obtain the necessary municipal or provincial permits for construction of the gas distribution system. These may include: opening permits, Tourism and Cultural Affairs, Nova Scotia Department of Environment and Labour; Nova Scotia Department of Highways and Public Works etc.

3.3 Design

- (1) The gas distribution system shall be designed, installed and maintained to meet or exceed the standards set out in all applicable Federal, Provincial and Municipal enactments, codes and specifications and the Canadian Standard Association (CSA) Oil and Gas Pipeline Systems CSA Z662, latest edition.
- (2) The location of the gas distribution system within the street is site specific and strict guidelines cannot be used to establish the location that will apply for all conditions.



However, general guidelines for location can be established and modified as required to meet specific site conditions.

- (3) The location of the gas distribution system should be jointly evaluated between the Municipal Unit and the Gas Distributor, giving consideration to the following:
 - the existing right-of-way;
 - the location of existing infrastructure;
 - the profile of the street – paved area, curb, sidewalk, median, ditch, backslopes, terrain, etc.;
 - the location of trees; and
 - future considerations relative to other infrastructure and planned modifications to the street system.
- (4) In selecting the location of the gas distribution lines, the location selected will require flexibility on the part of both the Municipal Unit and the Gas Distributor. In Nova Scotia, the installations for the initial years will be associated primarily with existing street/road systems, in both the urban and rural environment. Guidelines for construction in a rural environment where shoulders/ditches are more prevalent will vary from those in a more urban environment where the streetscape is more congested and in some cases concrete/asphaltic surface cover the total right-of-way.
 - (a) Urban (Curb and Gutter)

For urban streetscapes the following locations for pipe systems should be considered:

 - between the sidewalk and the right-of-way limit, or within easements established parallel to the property line. Locations adjacent the property line are generally within 1.5 to 2 metres inside the property line. Typical details as obtained from the City of Calgary are appended for residential, industrial and major streets.;
 - outside the paved area of the street system – in some jurisdictions for urban streets the location is 1 m outside the paved area (back of the curb);
 - within the boulevard;
 - between the sidewalk and the paved street, where a grass median exists; and
 - under the asphalt surface with clearances from other utilities, where no opportunity in other parts of the right-of-way exists; typical sketches within the asphaltic surface are appended.



(b) Rural (no curb)

- outside the paved area and a minimum of 1.5 metre inside the property line or right-of-way;
 - outside the paved area - 1 m outside the edge of pavement, within the shoulder area; and
 - within the ditch or within the back slope of the ditch. The pipe, if located in the ditch, must have sufficient cover for erosion concerns and maintenance requirements; the depth of bury must be increased due to risks associated with maintenance of the ditch system; the depth of bury is generally 1.2 to 1.5 m. A sketch showing the pipe within a ditch system and a table on recommended depth of bury from the Alberta Energy Utilities Board are included in Appendix D.
- (5) The depth of bury must conform to the minimum requirements of CSA. Generally the following is recommended for the depth of bury where the depth is measured from the surface to the top of casing pipe or carrier for distribution systems:
- minimum of 60 cm for polyethylene pipe;
 - minimum of 100 cm for steel pipe in an urban environment;
 - minimum of 120 cm for steel pipe in the shoulder of the road, within rural areas; and
 - at railway crossings in accordance with requirements of railway company.
- (6) Gas pipelines shall be installed so that the horizontal separation between the gas pipeline and other utilities (water, sewer, storm, cable) is at least 300 mm; some jurisdictions prefer larger clearances where practical.
- (7) Gas pipelines shall be installed so that primary root systems of trees are not damaged. Gas line installation in treed boulevards should be by directional drilling or boring, or an alternative method approved by the Municipal Unit.

3.4 Plans

- (1) Plans showing the location of the gas services are to be submitted to the Municipality for approval. These plans and/or profiles should contain the following:
- for all polyethylene (PE) pipe systems, plans only are required. Plans to be on a scale of 1:1000. Plans to include the right-of-way limits, curb lines, existing municipal infrastructure, north arrow, grid applicable to the municipal drawings,



and associated details for installation;

- for steel pipes in an urban environment plan and profiles are recommended. Plans to be submitted on a scale not larger than 1:1000 and profiles on a scale not larger than 1:1000. Plans to include the data as noted under PE pipe systems; the profiles could be requested only for those areas of intersections, water crossings, pipe crossing etc. Plans should incorporate details as noted above.
- for pipes in a rural environment plans to be submitted on a scale not larger than 1:2000; profiles on a scale of 1:2000 horizontal and 1:1000 vertical;
- all plans shall reflect standard symbology used by the Municipal Unit;
- approved gas line locations shall not deviate by more than 30 cms from the approved alignment; and
- all plans shall bear the professional seal and signature of a professional engineer registered by the Association of Professional Engineers to practice in the Province of Nova Scotia.

3.5 Specifications

- (1) Specifications shall be submitted by the Gas Distributor with the plans to the Municipal Unit.
- (2) The specifications shall incorporate the municipal standard specifications for the earthworks, reinstatement, asphalt paving, sidewalks, curb and gutter, topsoiling, seeding and sodding, concrete, grading, excavation methods including trenchless construction methods;
- (3) Standard specifications for municipal services as developed by the Nova Scotia Road Builders Association and the Consulting Engineers of Nova Scotia, Joint Committee on Contract Documents shall be the standard, supplemented by the Municipal Units specifications as appropriate.

3.6 As-Built

- (1) "As-built" plans shall be provided to the Municipal Unit within 60 days of completing the installation of the works. The as-built plans should be provided in hard copy and electronic format, which accurately depicts the location and depth of the gas mains



relative to the street/road right-of-way and relative to other infrastructure. The format shall be compatible with GIS systems or other systems used by the Municipal Unit.

3.7 Co-ordination During Construction

- (1) The installation of services by the Gas Distributor shall be co-ordinated with the municipality to minimize disturbance to the street system. The construction procedure should include:
 - notification to the municipality on the commencement of construction;
 - adherence to the by-laws in the Municipal Unit relative to hours of work;
 - written notice to area residents and businesses one (1) week in advance. Notice to include details on location and duration of construction, reinstatement, driveway restrictions, the Contractor's designated contact person and phone number; and
 - for any street closure or blockage near an intersection, a detour plan and a minimum of 5 days notice to residents/community.
- (2) The Gas Distributor shall maintain suitable access to all commercial facilities at all times during the construction program.. Scheduling shall be co-ordinated to minimize any negative impact on businesses during construction.
- (3) The Gas Distributor shall be responsible for the installation, maintenance and removal of all signage on construction sites. The signage including all traffic signage shall be in accordance with the municipality standards, or other jurisdictions such as Nova Scotia Department of Transportation and Public Works.
- (4) Municipal traffic control devices or signs which conflict with construction must not be removed/disturbed without the approval of the Municipal Unit.
- (5) The Gas Distributor shall be responsible for and implement traffic control during construction, employing competent, certified flag persons to ensure the safe and efficient flow of pedestrian and vehicular traffic.

3.8 Locate Requirements

- (1) The Municipal Unit shall incorporate a locate requirement with the Gas Distributor. The locate requirement should include time frames for response from the Gas Distributor as



follows:

- within two (2) hours in the event of an emergency;
- within twenty-four (24) hours in the event of a priority request; and
- within forty-eight (48) hours for all other cases.

3.9 Damage to Municipal Property

- (1) If any portion of any street or municipal infrastructure is damaged by reason of defects in any portion of the gas distribution system, or by reason of any other cause arising directly from the presence of the gas distribution system, the gas distributor shall, at its own cost and expense, immediately repair any such damage and restore such portion of such damaged street to as good or better condition as existed before such defect or other cause of damage occurred, such work to be done under the direction of the Engineer, and to his satisfaction.
- (2) Trees on municipal property are to be protected at all times. The distribution system is to be designed on the premise that, unless approved by the municipal engineer, municipal trees are not to be adversely affected by the installation or operation of the gas distribution system.

3.10 Reinstatement

- (1) The Gas Distributor shall well and sufficiently restore, to the reasonable satisfaction of the Engineer/Road Superintendent, all highways, municipal works or improvements which it may excavate or interfere with in the course of laying, constructing, repairing or removing its gas system, and shall make good any settling or subsidence thereafter caused by such excavation or interference. If the Gas Distributor fails at any time to do any work required within a reasonable period of time, the Municipal Unit may do or cause such work to be done and the Gas Distributor shall, on demand, pay the Municipal Unit's reasonably incurred costs, as certified by the Engineer/Road Superintendent.
- (2) All surfaces shall be restored to at least the same condition as previous to the pipeline installation;
- (3) Topsoil reinstatement shall occur within 2 weeks of excavation and backfilling;
- (4) Where it is necessary for approval to install pipelines within the vehicular travelled way in asphaltic concrete areas, the following shall be undertaken:



- the asphalt to be removed shall be cut with a wheel cutter or saw; the cut should be 300 mm minimum from the edge of the excavation to minimize tension cracks;
- backfill shall be with approved granular base materials and compacted in lifts, all in accordance with the Standard Specification for Municipal Services or the specifications of the Municipality;
- reinstatement of the base courses and asphaltic concrete shall be in accordance with Section 02660 Reinstatement of the Standard Specification for Municipal Services. Asphalt reinstatement shall be of a depth equal to existing surrounding asphalt or a minimum thickness of 130 mm;
- walks, curbs and gutters shall be reinstated in accordance with Section 02630 and Section 02660 of the Standard Specification for Municipal Services;
- topsoil reinstatement including hydroseeding and/or sodding shall be in accordance with Section 02650 of the Standard Specification for Municipal Services; and
- the latest date for reinstatement without prior approval of the Municipal Unit shall be as follows:

Hydroseeding -	September 15
Asphalt -	November 1
Concrete -	November 15

3.11 Pipeline Relocation

- (1) If in the course of constructing, reconstructing, changing, altering or improving any highway or any municipal works, the Municipal Unit deems that it is necessary to take up, remove or change the location of any part of the gas system, the gas distributor shall, upon notice to do so, remove and/or relocate within a reasonable period of time such part of the gas system to a location approved by the Municipal Engineer at the sole expense of the Gas Distributor.
- (2) The Gas Distributor shall not be required to bear the expense of any removal or relocation made at the request of the Municipality on behalf or for the benefit of any private developer or other third party.
- (3) At the request of the Engineer, the Gas Distributor shall structurally support any portion of its gas distribution system at its own cost where necessary as part of the process of implementing any municipal improvements.



3.12 Indemnification

- (1) The Gas Distributor shall, at all times, indemnify and save harmless the Municipal Unit from and against all claims, including costs related thereto, for all damages or injuries including death to any person or persons and for damage to any property, arising out of the Gas Distributor's operating, constructing, and maintaining its gas system in the Municipality, or utilizing its gas system for the carriage of gas owned by others. Provided that the Gas Distributor shall not be required to indemnify or save harmless the Municipal Unit from and against claims, including costs related thereto, which it may incur by reason of damages or injuries including death to any person or persons and for damage to any property, resulting from the negligence or wrongful act on the Municipal Unit, its servants, agents or employees.

3.13 Insurance

- (1) The Gas Distributor shall maintain Comprehensive General Liability insurance in sufficient amount and description as shall protect the Gas Distributor and the Municipal Unit from claims for which the Gas Distributor is obliged to indemnify the Municipal Unit under Clause 3.12. The insurance policy shall identify the Municipal Unit as an additional named insured, but only with respect to the operation of the named insured (the Gas Distributor). The insurance policy shall not lapse or be cancelled without sixty (60) days' prior written notice to the Municipal Unit by the Gas Distributor.
- (2) The issuance of an insurance policy as provided shall not be construed as relieving the Gas Distributor of liability not covered by such insurance or in excess of the policy limits of such insurance.
- (3) Upon request by the Municipal Unit, the Gas Distributor shall confirm that premiums for such insurance have been paid and that such insurance is in full force and effect.
- (4) The Gas Distributor shall confirm that the insurance in place meets the requirements of the terms and conditions of its franchise grant pursuant to Section 13 of the Gas Distribution Act.

3.14 Removal of Gas Distribution System

Any removal of the gas distribution system either upon the termination of this Agreement or otherwise will be as directed by the UARB.





APPENDIX A

Survey Questionnaire



© Jacques Whitford and Associates Limited



Jacques Whitford Questionnaire
Best Practices – Natural Gas Pipelines in Roadways

May 22, 2001
Project No. NSD 16009

The Province of Nova Scotia, through Service Nova Scotia and Municipal Relations is establishing guidelines and best practices for the installation of gas pipelines in the roadway/street systems, within towns, villages, etc. The emphasis is on low to medium pressure systems associated with local distribution. The objective is to develop a model policy/specification which can be given to the municipal units for standards. To address this issue, a study was commissioned by the Province through Jacques Whitford to determine standards in other jurisdictions. This questionnaire is developed to obtain a common database from municipal, provincial and private sector groups.

Organization/Municipal Unit

Contact Name

Name: _____

Tel. No.: _____

Jacques Whitford Interviewer

Name: _____

Location: _____

Date: _____

1. Gas Services In Road System

1.1 Is there an acceptance practice in place? Yes ☐ No ☐

1.2 Does practice vary by pressure of system?

Low ☐

Medium ☐

High ☐



1.3 Does practice differ by road classification?

Arterial	Yes ☐	No ☐
Collector	Yes ☐	No ☐
Local Street	Yes ☐	No ☐

1.4 Accepted Position on Roadway

Stipulations

Asphalt Surface

Sidewalk

Median

Shoulder

Ditch

Right-of-Way

1.5 Is there variance in position based on pressure?

Yes ☐

No ☐

If Yes, explain:

2. Regulatory

2.1 Under Whose Jurisdiction?

2.2 Permit Requirements:

2.3 Drawing Requirements:

2.4 Approval Process:

2.5 As-Built Requirements:



3. Design Considerations

3.1 Standards/Details – Explain: _____

3.2 Engineering Plan Requirement – Explain: _____

3.3 Details on Installation

	<u>Within Existing Streets</u>	<u>In New Streets</u>
Location:	_____	_____
Depth:	_____	_____
Methods/Installation		
Trenchless Technology:	_____	_____
Conventional:	_____	_____

3.4 Service Connection Pipes

	<u>Within Existing Streets</u>	<u>In New Streets</u>
Location:	_____	_____
Depth:	_____	_____
Methods/Installation		
Trenchless Technology:	_____	_____
Conventional:	_____	_____



3.5 Specifications

Within Existing Streets

In New Streets

Technical Specifications

Backfill and

Compaction Criteria

Restoration Criteria

3.6 Safety Requirements – Explain:

4. Inspection During Construction – Explain Requirements:

5. Experience relative to safety, environmental issues, and past roadway performance.

5.1 Existing Streets

Safety

Environmental Issues

Post Roadway
Performance



5.2 New Streets

Safety

Environmental Issues

Post Roadway
Performance

6. Availability of Data

6.1 Are the following available for gas distribution?

Guidelines Yes ☐ No ☐

Design Practices Yes ☐ No ☐

Specifications Yes ☐ No ☐

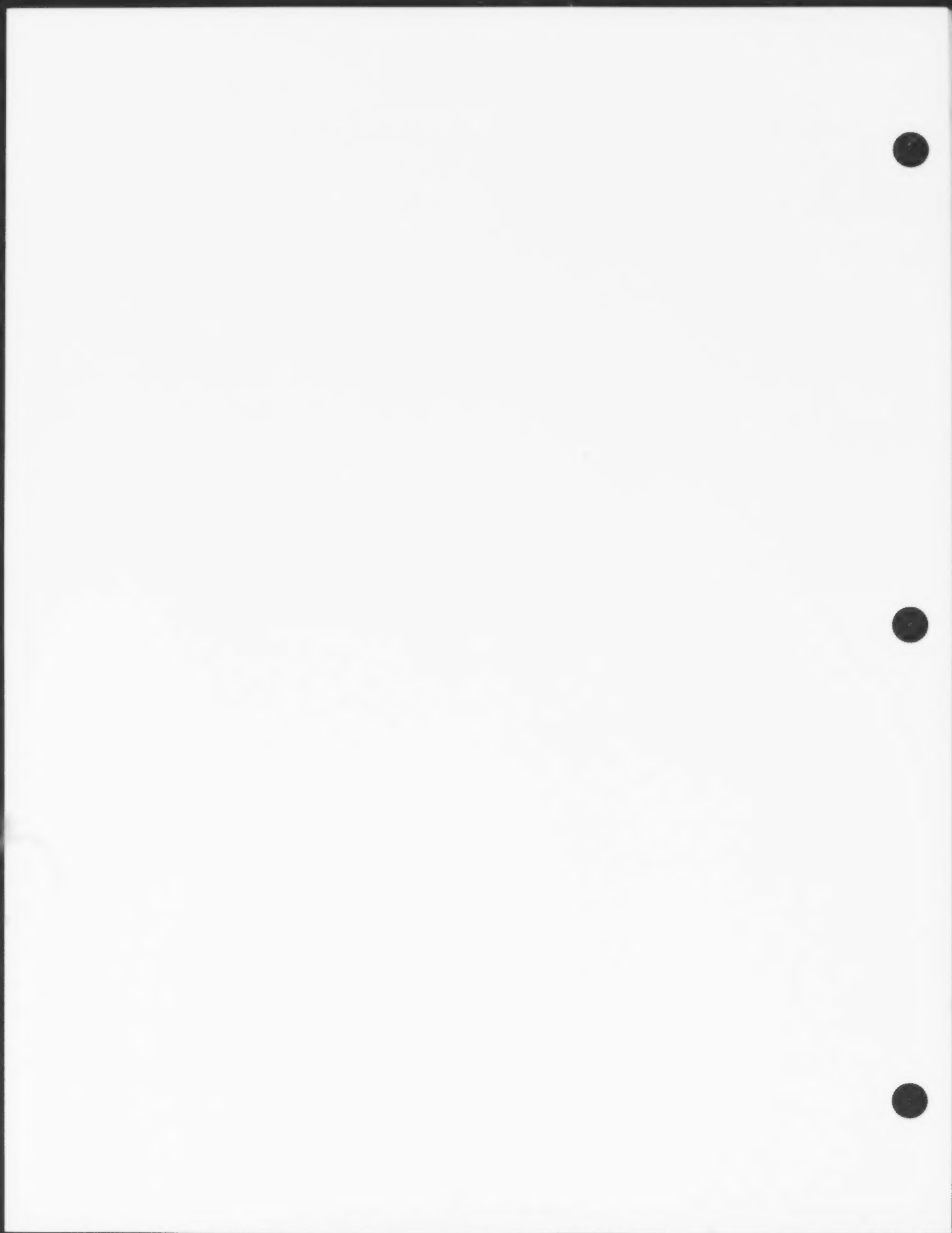
Permit Form Yes ☐ No ☐

6.2 Can copies be obtained?

Yes ☐ No ☐

(obtain copies)

Thank you for your input.





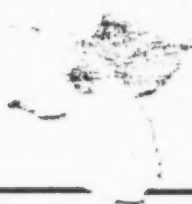
APPENDIX B

Model Franchise Agreement
Source: Ontario Energy Board

Guideline for Construction of Natural Gas Mains Within the Municipality
Source: City of Fredericton

Municipal Service Systems Part A – Design Guideline 11.0 Natural Gas Pipelines
Guidelines
Source: Halifax Regional Municipality





ONTARIO

Model Franchise Agreement

THIS AGREEMENT effective this day of 20

BETWEEN:

hereinafter called the "Corporation"

- and -

hereinafter called the "Gas Company"

WHEREAS the Gas Company desires to distribute, store and transmit gas in the Municipality upon the terms and conditions of this Agreement;

AND WHEREAS by by-law passed by the Council of the Corporation (the "By-law"), the duly authorized officers have been authorized and directed to execute this Agreement on behalf of the Corporation;

THEREFORE the Corporation and the Gas Company agree as follows:

Part I - Definitions

1. In this Agreement:

- a. "decommissioned" and "decommissions" when used in connection with parts of the gas system, mean any parts of the gas system taken out of active use and purged in accordance with the applicable CSA standards and in no way affects the use of the term 'abandoned' pipeline for the purposes of the *Assessment Act*;
- b. "Engineer/Road Superintendent" means the most senior individual employed by the Corporation with responsibilities for highways within the Municipality or the person designated by such senior employee or such other person as may from time to time be

designated by the Council of the Corporation;

- c. "gas" means natural gas, manufactured gas, synthetic natural gas, liquefied petroleum gas or propane-air gas, or a mixture of any of them, but does not include a liquefied petroleum gas that is distributed by means other than a pipeline;
- d. "gas system" means such mains, plants, pipes, conduits, services, valves, regulators, curb boxes, stations, drips or such other equipment as the Gas Company may require or deem desirable for the distribution, storage and transmission of gas in or through the Municipality;
- e. "highway" means all common and public highways and shall include any bridge, viaduct or structure forming part of a highway, and any public square, road allowance or walkway and shall include not only the travelled portion of such highway, but also ditches, driveways, sidewalks, and sodded areas forming part of the road allowance now or at any time during the term hereof under the jurisdiction of the Corporation;
- f. "Model Franchise Agreement" means the form of agreement which the Ontario Energy Board uses as a standard when considering applications under the *Municipal Franchises Act*. The Model Franchise Agreement may be changed from time to time by the Ontario Energy Board;
- g. "Municipality" means the territorial limits of the Corporation on the date when this Agreement takes effect, and any territory which may thereafter be brought within the jurisdiction of the Corporation;
- h. "Plan" means the plan described in Paragraph 5 of this Agreement required to be filed by the Gas Company with the Engineer/Road Superintendent prior to commencement of work on the gas system; and
- i. whenever the singular, masculine or feminine is used in this Agreement, it shall be considered as if the plural, feminine or masculine has been used where the context of the Agreement so requires.

Part II - Rights Granted

- j. To provide gas service:

The consent of the Corporation is hereby given and granted to the Gas Company to distribute, store and transmit gas in and through the Municipality to the Corporation and to the inhabitants of the Municipality.

or

The consent of the Corporation is hereby given and granted to the Gas Company to distribute, store and transmit gas in and through the Corporation and to the inhabitants of those local or lower tier municipalities within the Municipality from which the Gas Company has a valid franchise agreement for that purpose.

* Footnote: Choose one only.

k. To Use Highways.

Subject to the terms and conditions of this Agreement the consent of the Corporation is hereby given and granted to the Gas Company to enter upon all highways now or at any time hereafter under the jurisdiction of the Corporation and to lay, construct, maintain, replace, remove, operate and repair a gas system for the distribution, storage and transmission of gas in and through the Municipality.

l. Duration of Agreement and Renewal Procedures.

- a. If the Corporation has not previously received gas distribution services, the rights hereby given and granted shall be for a term of 20 years from the date of final passing of the By-law.

or

- b. If the Corporation has previously received gas distribution services, the rights hereby given and granted shall be for a term of 20 years from the date of final passing of the By-law provided that, if during the 20-year term this Agreement, the Model Franchise Agreement is changed, then on the 7th anniversary and on the 14th anniversary of the date of the passing of the By-law, this Agreement shall be deemed to be amended to incorporate any changes in the Model Franchise Agreement in effect on such anniversary dates. Such deemed amendments shall not apply to alter the 20-year term.
- c. At any time within two years prior to the expiration of this Agreement, either party may give notice to the other that it desires to enter into negotiations for a renewed franchise upon such terms and conditions as may be agreed upon. Until such renewal has been settled, the terms and conditions of this Agreement shall continue, notwithstanding the expiration of this Agreement. This shall not preclude either party from applying to the Ontario Energy Board for a renewal of the Agreement pursuant to section 10 of the *Municipal Franchises Act*.

Part III - Conditions

m. Approval of Construction

- a. The Gas Company shall not undertake any excavation, opening or work which will disturb or interfere with the surface of the travelled portion of any highway unless a permit therefor has first been obtained from the Engineer/Road Superintendent and all work done by the Gas Company shall be to his satisfaction.
- b. Prior to the commencement of work on the gas system, or any extensions or changes to it (except service laterals which do not interfere with municipal works in the highway), the Gas Company shall file with the Engineer/Road Superintendent a Plan, satisfactory to the Engineer/Road Superintendent, drawn to scale and of sufficient detail considering the complexity of the specific locations involved, showing the highways in which it proposes to lay its gas system and the

particular parts thereof it proposes to occupy.

- c. The Plan filed by the Gas Company shall include geodetic information for a particular location:
 - i. where circumstances are complex, in order to facilitate known projects, including projects which are reasonably anticipated by the Engineer/Road Superintendent, or
 - ii. when requested, where the Corporation has geodetic information for its own services and all others at the same location.
- d. The Engineer/Road Superintendent may require sections of the gas system to be laid at greater depth than required by the latest CSA standard for gas pipeline systems to facilitate known projects or to correct known highway deficiencies.
- e. Prior to the commencement of work on the gas system, the Engineer/Road Superintendent must approve the location of the work as shown on the Plan filed by the Gas Company, the timing of the work and any terms and conditions relating to the installation of the work.
- f. In addition to the requirements of this Agreement, if the Gas Company proposes to affix any part of the gas system to a bridge, viaduct or other structure, if the Engineer/Road Superintendent approves this proposal, he may require the Gas Company to comply with special conditions or to enter into a separate agreement as a condition of the approval of this part of the construction of the gas system.
- g. Where the gas system may affect a municipal drain, the Gas Company shall also file a copy of the Plan with the Corporation's Drainage Superintendent for purposes of the *Drainage Act*, or such other person designated by the Corporation as responsible for the drain.
- h. The Gas Company shall not deviate from the approved location for any part of the gas system unless the prior approval of the Engineer/Road Superintendent to do so is received.
- i. The Engineer/Road Superintendent's approval, where required throughout this Paragraph, shall not be unreasonably withheld.
- j. The approval of the Engineer/Road Superintendent is not a representation or warranty as to the state of repair of the highway or the suitability of the highway for the gas system.

n. As Built Drawings

The Gas Company shall, within six months of completing the installation of any part of the gas system, provide two copies of "as built" drawings to the Engineer/Road Superintendent. These drawings must be sufficient to accurately establish the location, depth (measurement between the top of the gas system and the ground surface at the time of installation) and distance of the gas system. The "as built" drawings shall be of the same quality as the Plan and, if the approved pre-construction plan included elevations that were geodetically referenced, the "as built" drawings shall similarly include elevations that are geodetically referenced. Upon the request of the Engineer/Road Superintendent, the Gas Company shall provide one copy of the drawings in an electronic format and one copy as a hard copy drawing.

o. Emergencies

In the event of an emergency involving the gas system, the Gas Company shall proceed with the work required to deal with the emergency, and in any instance where prior approval of the Engineer/Road Superintendent is normally required for the work, the Gas Company shall use its best efforts to immediately notify the Engineer/Road Superintendent of the location and nature of the emergency and the work being done and, if it deems appropriate, notify the police force, fire or other emergency services having jurisdiction. The Gas Company shall provide the Engineer/Road Superintendent with at least one 24 hour emergency contact for the Gas Company and shall ensure the contacts are current.

p. Restoration

The Gas Company shall well and sufficiently restore, to the reasonable satisfaction of the Engineer/Road Superintendent, all highways, municipal works or improvements which it may excavate or interfere with in the course of laying, constructing, repairing or removing its gas system, and shall make good any settling or subsidence thereafter caused by such excavation or interference. If the Gas Company fails at any time to do any work required by this Paragraph within a reasonable period of time, the Corporation may do or cause such work to be done and the Gas Company shall, on demand, pay the Corporation's reasonably incurred costs, as certified by the Engineer/Road Superintendent.

q. Indemnification

The Gas Company shall, at all times, indemnify and save harmless the Corporation from and against all claims, including costs related thereto, for all damages or injuries including death to any person or persons and for damage to any property, arising out of the Gas Company operating, constructing, and maintaining its gas system in the Municipality, or utilizing its gas system for the carriage of gas owned by others. Provided that the Gas Company shall not be required to indemnify or save harmless the Corporation from and against claims, including costs related thereto, which it may incur by reason of damages or injuries including death to any person or persons and for damage to any property, resulting from the negligence or wrongful act of the Corporation, its servants, agents or employees.

r. Insurance

- a. The Gas Company shall maintain Comprehensive General Liability Insurance in sufficient amount and description as shall protect the Gas Company and the Corporation from claims for which the Gas Company is obliged to indemnify the Corporation under Paragraph 9. The insurance policy shall identify the Corporation as an additional named insured, but only with respect to the operation of the named insured (the Gas Company). The insurance policy shall not lapse or be cancelled without sixty (60) days' prior written notice to the Corporation by the Gas Company.
- b. The issuance of an insurance policy as provided in this Paragraph shall not be construed as relieving the Gas Company of liability not covered by such insurance or in excess of the policy limits of such insurance.
- c. Upon request by the Corporation, the Gas Company shall confirm that premiums for such insurance have been paid and that such insurance is in full force and effect.

s. Alternative Easement

The Corporation agrees, in the event of the proposed sale or closing of any highway or any part of a highway where there is a gas line in existence, to give the Gas Company reasonable notice of such proposed sale or closing and, if is feasible, to provide the Gas Company with easements over that part of the highway proposed to be sold or closed sufficient to allow the Gas Company to preserve any part of the gas system in its then existing location. In the event that such easements cannot be provided, the Corporation and the Gas Company shall share the cost of relocating or altering the gas system to facilitate continuity of gas service, as provided for in Paragraph 12 of this Agreement.

t. Pipeline Relocation

- a. If in the course of constructing, reconstructing, changing, altering or improving any highway or any municipal works, the Corporation deems that it is necessary to take up, remove or change the location of any part of the gas system, the Gas Company shall, upon notice to do so, remove and/or relocate within a reasonable period of time such part of the gas system to a location approved by the Engineer/Road Superintendent.
- b. Where any part of the gas system relocated in accordance with this Paragraph is located on a bridge, viaduct or structure, the Gas Company shall alter or relocate that part of the gas system at its sole expense.
- c. Where any part of the gas system relocated in accordance with this Paragraph is located other than on a bridge, viaduct or structure, the costs of relocation shall be shared between the Corporation and the Gas Company on the basis of the total relocation costs, excluding the value of any upgrading of the gas system, and deducting any contribution paid to the Gas Company by others in respect to such relocation; and for these purposes, the total relocation costs shall be the aggregate of the following:

- i. the amount paid to Gas Company employees up to and including field supervisors for the hours worked on the project plus the current cost of fringe benefits for these employees,
 - ii. the amount paid for rental equipment while in use on the project and an amount, charged at the unit rate, for Gas Company equipment while in use on the project,
 - iii. the amount paid by the Gas Company to contractors for work related to the project,
 - iv. the cost to the Gas Company for materials used in connection with the project, and
 - v. a reasonable amount for project engineering and project administrative costs which shall be 22.5% of the aggregate of the amounts determined in items (i), (ii), (iii) and (iv) above.
- d. The total relocation costs as calculated above shall be paid 35% by the Corporation and 65% by the Gas Company, except where the part of the gas system required to be moved is located in an unassumed road or in an unopened road allowance and the Corporation has not approved its location, in which case the Gas Company shall pay 100% of the relocation costs.

Part IV - Procedural And Other Matters

u. Municipal By-laws of General Application

The Agreement is subject to the provisions of all regulating statutes and all municipal by-laws of general application, except by-laws which have the effect of amending this Agreement.

v. Giving Notice

Notices may be delivered to, sent by facsimile or mailed by prepaid registered post to the Gas Company at its head office or to the authorized officers of the Corporation at its municipal offices, as the case may be.

w. Disposition of Gas System

- a. If the Gas Company decommissions part of its gas system affixed to a bridge, viaduct or structure, the Gas Company shall, at its sole expense, remove the part of its gas system affixed to the bridge, viaduct or structure.
- b. If the Gas Company decommissions any other part of its gas system, it shall have the right, but is not required, to remove that part of its gas system. It may exercise its right to remove the decommissioned parts of its gas system by giving notice of its intention to do so by filing a Plan as required by Paragraph 5 of this Agreement

for approval by the Engineer/Road Superintendent. If the Gas Company does not remove the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in any highway, the Corporation may remove and dispose of so much of the decommissioned gas system as the Corporation may require for such purposes and neither party shall have recourse against the other for any loss, cost, expense or damage occasioned thereby. If the Gas Company has not removed the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in a highway, the Gas Company may elect to relocate the decommissioned gas system and in that event Paragraph 12 applies to the cost of relocation.

x. Use of Decommissioned Gas System

- a. The Gas Company shall provide promptly to the Corporation, to the extent such information is known:
 - i. the names and addresses of all third parties who use decommissioned parts of the gas system for purposes other than the transmission or distribution of gas; and
 - ii. the location of all proposed and existing decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas.
- b. The Gas Company may allow a third party to use a decommissioned part of the gas system for purposes other than the transmission or distribution of gas and may charge a fee for that third party use, provided
 - i. the third party has entered into a municipal access agreement with the Corporation; and
 - ii. the Gas Company does not charge a fee for the third party's right of access to the highways.
- c. Decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas are not subject to the provisions of this Agreement. For decommissioned parts of the gas system used for purposes other than the transmission and distribution of gas, issues such as relocation costs will be governed by the relevant municipal access agreement.

y. Franchise Handbook

The Parties acknowledge that operating decisions sometimes require a greater level of detail than that which is appropriately included in this Agreement. The Parties agree to look for guidance on such matters to the Franchise Handbook prepared by the Association of Municipalities of Ontario and the gas utility companies, as may be

amended from time to time.

z. Other Conditions

The following paragraph shall be inserted as a special condition in the old Union Gas franchise area, which is understood to be the franchise area of Union Gas in southwestern Ontario prior to its merger with Centra Gas.

Notwithstanding the cost sharing arrangements described in Paragraph 12, if any part of the gas system altered or relocated in accordance with Paragraph 12 was constructed or installed prior to January 1, 1981, the Gas Company shall alter or relocate, at its sole expense, such part of the gas system at the point specified, to a location satisfactory to the Engineer/Road Superintendent.

aa. Agreement Binding Parties

This Agreement shall extend to, benefit and bind the parties thereto, their successors and assigns, respectively.

IN WITNESS WHEREOF the parties have executed this Agreement effective from the date written above.

THE CORPORATION OF _____

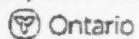
By: _____

Duly Authorized Officer

[Insert name of Gas Company]

By: _____

Information available through this site is provided as a public service, but the Board cannot guarantee that the information is necessarily current or accurate.

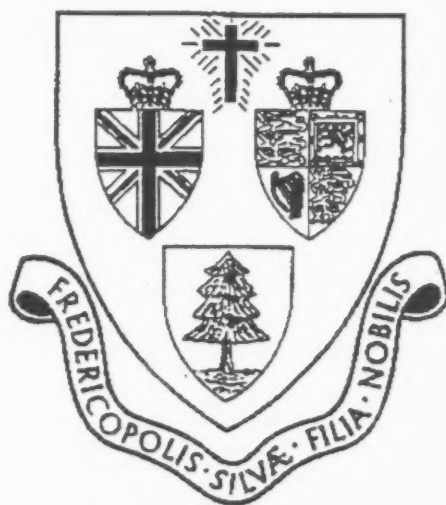


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CITY OF FREDERICTON



Guidelines For Construction Of NATURAL GAS MAINS WITHIN THE MUNICIPALITY

April 23, 2001
Second Edition

PREFACE

The City of Fredericton ("City") and the natural gas distributor, Enbridge Gas New Brunswick Inc. ("Enbridge"), operate under a Municipal Operating Agreement signed in August of 2000.

The Agreement outlines the general principles that the City and Enbridge will follow as natural gas mains are constructed throughout the municipality.

There are many technical and procedural issues which the agreement does not cover. In an effort to streamline the approval process and address the technical and construction related operational issues, the City, through consultation with various municipal stakeholders, has produced this guideline.

PLANS

The Agreement states that construction plans submitted by Enbridge must be approved by the City's Director of Engineering and Public works (the "Engineer"). This is a guiding principle and the following elements must be present in order for the Plans to be approved by the Engineer:

- Construction plans shall be at a minimum scale of 1:500 and show a NB Grid North Arrow.
- The plans must accurately show the right-of-way widths and the position of the face of curb where applicable within the right-of-way. Generally, local street rights-of-way are 20.12 metres (66') wide and the curb lines are centred within the rights-of-way. For example, in older areas of the City or older subdivisions, the road widths are 9.12 metres (30') wide and the boulevard widths are 5.5 metres (18') wide. These widths and the location of the road within the right-of-way of newer subdivisions may vary as right-of-way width for local streets may be reduced to 18 metres for example.

Usually there is sufficient information within City files to determine these fundamental dimensions however they must be confirmed by field surveys carried out by Enbridge or its contractors.

In many cases Municipal infrastructure information is available in electronic Geographic Information System (GIS) format. Most of this information was obtained from field surveys to a high degree of accuracy. Where this information exists, Enbridge shall show existing infrastructure information on the plans.

Where hard copy infrastructure information exists, the plans shall show the location of the curb lines and, water, storm and sanitary sewer lines relative to the right of way lines. Failure to show this information will result in approval delays (determining alternate gas routes). If construction difficulties are encountered in the preferred location, determining alternate gas main routes is impossible without the proper infrastructure location information.

The Plans shall reflect the standard symbology used by the City and generally be of high quality. The Plans shall also bear the professional seal, and signature of a professional engineer registered by APEGNB to practice in the Province of New Brunswick.

"As built" plans will be provided to the City in an electronic format which accurately depicts the location and depth of the gas mains. Elevation information will be required in intersections where the gas mains cross water, storm or sanitary sewer lines and traffic signal conduit. In general, intersection areas are defined where the approaching curb begins to diverge from its original alignment or where the radius turn in the curb begins. This information is critical for the planning of new or the upgrading of existing infrastructure.

APPROVAL PROCESS

Whereas the Agreement states the Approval Process shall be completed within 20 days, the City will try to complete the approval process as quickly as possible. The Engineer may recommend an alternate route when City facilities are negatively impacted. In that case, Enbridge must initiate the approval process again and submit revised plans for approval. Approved gas line locations shall not deviate by more than 0.5 metres. If construction difficulties are encountered especially when directional drilling, the Engineer may permit deviation beyond this limit.

The Engineer's Approval will be in writing.

CONSTRUCTION PROCESS

Organization: The City has appointed a staff member as Gas Project Engineer.

It is recommended that the City, Utility Companies, Enbridge and their Contractors meet on a weekly basis to discuss scheduling and construction issues. It is suggested this meeting occur each Monday at 2:30 p.m. at City Hall.

The Contractor will work from approved construction plans. Approval must be received from the Engineer for minor or major deviations from the plans. Enbridge shall record and include all revisions on the As Built plans.

Notification: Before Enbridge or its Contractors begin construction on a City street, Engineering and Public Works Dispatch must be notified during normal office hours. The number is 460-2038 or 460-2088.

The Contractor shall endeavor to keep two lanes of traffic moving at all times. In the case of a lane blockage or traffic restriction, (24 hours) notice is required. In the case of a street closure, street blockage or work near a major intersection, a detour plan and a minimum of 5 days notice is required. Depending on location and the amount of traffic, additional notice may be required. All detours must be coordinated with the City's Traffic Engineer.

One week in advance of construction, the Contractor shall distribute a written notice to area residents or businesses, and a record copy sent to the City. The notice should include such details as location and duration of construction, reinstatement particulars and possible driveway access restrictions for example. The Contractor's designated contact person and phone number shall also be provided.

In addition, the Contractor shall notify the Public through the local media of work on major streets which may negatively impact the general public.

Signage/Flagging: The Contractor shall be responsible for the installation, maintenance, and removal of all signage on the construction site.

The signage shall conform to New Brunswick Department of Transportation specifications and will be of sufficient type and numbers to promote the safe and efficient movement of vehicular and pedestrian traffic within the right-of-way. Arrangement and type of signage is to meet City of Fredericton Standards. (Appendix "A").

Municipal traffic control devices or signs which impact or conflict with construction must not be disturbed or removed without prior approval of the City. The City shall handle exclusively the temporary removal, relocation, or reinstallation of traffic control devices or signs except where specifically authorized by the Engineer.

The City shall charge a fixed fee of **\$60.00 plus HST** for the removal and restoration of each traffic control device or sign by City employees. Such fee shall be invoiced to Enbridge and will include descriptive backup information on type of sign(s), number and locations.

Notwithstanding the above, Enbridge shall be liable for the replacement cost as determined by the City for any sign post assembly removed by the Contractor and subsequently damaged or lost by whatsoever means including theft or vandalism during on-site storage.

If the Contractor inadvertently disturbs any traffic control device or sign such that there is a resulting risk to public safety, the City shall be notified immediately. Failure to comply with this essential requirement will result in a "stop work order." Construction will not resume until proper safeguards have been restored.

The Contractor shall employ competent, certified flag persons to ensure the safe and efficient flow of vehicular and pedestrian traffic on City streets.

Access: In commercial areas, the Contractor shall maintain suitable access to businesses at all times and shall discuss in advance construction scheduling which may have a negative impact on businesses.

If the Contractor and Business owners/operators cannot reach agreement on the construction process the City will help mediate an acceptable solution.

Aquifer Protection: In areas designated by the Engineer, the Contractor shall carry out special measures to eliminate or minimize the risk of spills and leaks of groundwater contaminants such as, but not limited to; fuel, oil, and hydraulic fluid.

Spills of hydrocarbons or other hazardous fluids, even small ones, must be cleaned immediately. The Contractor shall call the Fire Department if a spill occurs, requesting help with absorbents or booming.

If contaminated soil needs to be removed, for disposal locations, the Contractor shall call the Fire Department or Engineering and Public Works Dispatchers and ask for the City's Water and Sewer Engineer.

If contaminants enter the storm sewer system, the Contractor shall call the Fire Department and the Engineering and Public Works Dispatcher (460-2038), describe the problem and ask them to inform the City's Roads & Streets Division.

If contaminants enter the sanitary system or gate valve chambers, the Contractor shall call the Fire Department and the Engineering and Public Works Dispatcher (460-2038), describe the problem and ask to inform the City's Water & Sewer Division.

The Contractor shall use only equipment that is well maintained and in good operating order particularly with regard to the condition of hoses, fittings and seals. Do not continue operating equipment in which leaks are observed. Remove leaking equipment from site or have it immediately serviced to correct the problem

The Contractor and fuel suppliers shall take special care when refueling equipment. The Contractor shall also ensure that subcontractors, and heavy equipment suppliers are made fully aware of the risks of contamination to the City's water supply in the downtown area and are instructed accordingly.

The Contractor shall develop a contingency plan to ensure an efficient and effective response in the event a spill or emergency occurs.

Trees: The City of Fredericton is well recognized for its efforts to maintain and expand its urban forest.

Open trench excavation within the drip line of City owned trees is not permitted as this would result in major tree damage or destruction.

Gas line installation in treed boulevards is to be by directional drilling or boring. If boring is unsuccessful, it is the responsibility of Enbridge to determine an acceptable alternate route.

Tree trimming or removal, and root pruning, if necessary, shall be carried out by the City at Enbridge's expense.

Damage: Any damage to municipal infrastructure by Enbridge or its Contractor shall be reported immediately to the City through Public Works Dispatch. In most cases, City infrastructure such as water, sanitary and storm sewer mains shall be repaired or replaced by the City. Curb, sidewalk and asphalt reinstatement may be carried out by an approved contractor to the City's specifications.

Enbridge will be billed for any damages caused by its own action or its Contractor. The bill shall be paid within 30 days of the invoice date and is subject to an interest rate of 1.5% / month on overdue accounts.

REINSTATEMENT

Excavation / Backfilling within City Streets: All asphalt cutting before excavating in City Streets shall be by use of a wheel cutter or saw. Backfill will be with approved granular base materials and compacted in maximum lifts as per APEGNB Recommended Standards Water and Sewer Projects Third Edition February 2000 (APEGNB Specifications). Trenches within the streets shall be protected with barricades or delineator posts at all times. Every effort shall be made to reinstate trenches as soon as possible.

Asphalt Reinstatement: Asphalt reinstatement shall be with approved asphalt mix design to a depth equal to the existing asphalt thickness or a minimum of 130mm. Asphalt reinstatement shall occur as soon as possible or a maximum of 2 weeks after pipe installation. All asphalt reinstatement shall be completed by November 1st.

Concrete Reinstatement: The reinstatement of concrete curbs and sidewalks shall be carried out using concrete to CAN/CSA A23.1 exposure class C-2; strength class 32 Mpa; air entrained. Formwork, placement, consolidating, finishing and curing of concrete shall be in accordance with CAN/CSA A23.1-M90. Dimensions, control and expansion joint spacing and materials shall match original or latest City standards. Concrete reinstatement shall occur as soon as possible or a maximum of 2 weeks after construction. Cold weather concreting requires insulated and/or heated enclosures to the approval of the Engineer. To ensure quality concrete work and restoration of abutting surfaces, the removal of concrete curbs, driveways and sidewalks will not be permitted later than November 1st and all restoration concrete must be cast by November 15th.

Topsoil Reinstatement: Excavations within the boulevard areas shall also be protected with barricades or other methods.

Topsoil reinstatement shall occur within 2 weeks of excavation and backfilling. Backfill shall be compacted in place and a minimum of 150 mm of approved topsoil applied.

The topsoil shall be fertile, friable soil of loamy character; typical of locality; free of shrubs, tree roots, stones, clods, or other foreign matter; clay content 10% to 30%; sand content 15% to 50%; organic content 5%; pH 5.5 to 7.0. Upon request by the City, the Contractor must produce a soil test showing organic matter content and physical makeup of the soil.

Topsoil shall be blended with existing grades and rolled prior to hydroseeding or sodding.

Hydroseeding will not be permitted after September 15th.

Reinstatement shall be to the satisfaction of the Engineer.

Sweeping: The Contractor shall keep municipal streets clean at all times.

Gravel, dust and construction materials shall be removed from municipal streets at the end of each construction day. If City sweeping services are required, the Contractor shall notify Public Works Dispatch 24 hours in advance where possible. Billing for this service will be directed through Enbridge.

UNDERGROUND UTILITY LOCATES

One business day notification is required for all locates. That is before the end of the prior business day (4:30 p.m.). Notification for locates is to be coordinated through the City of Fredericton Engineering and Public Works Dispatch (506) 460-2038.

TRAFFIC RESTRICTION LIMITATIONS

Traffic shall not be restricted on arterial and collector streets during the morning and evening peak traffic hours from **7:30 a.m. - 8:30 a.m.** and **4:00 p.m. - 5:30 p.m.** without the prior approval of the Engineer.

WORK HOURS

Construction or the operation of equipment shall not occur between the hours of 9:00 p.m. - 6:00 a.m. unless prior written approval is obtained from the Engineer.

MUNICIPAL CONTACT PERSONNEL

Name	Position	Contact No.
Murray Jamer	Director of Engineering & Public Works	460-2037
Jim Martin	Assistant Director of Engineering & Public Works	460-2063 or Cell. 450-5555
Mark Hymers	Gas Project Engineer	460-2484 or Cell. 474-3592
Cyril Hawkins	Traffic Engineer	460-2060
Peter Grasman	Superintendent Roads & Streets Division	460-2038
Andy Holyoke	Superintendent Water & Sewer Division	460-2038

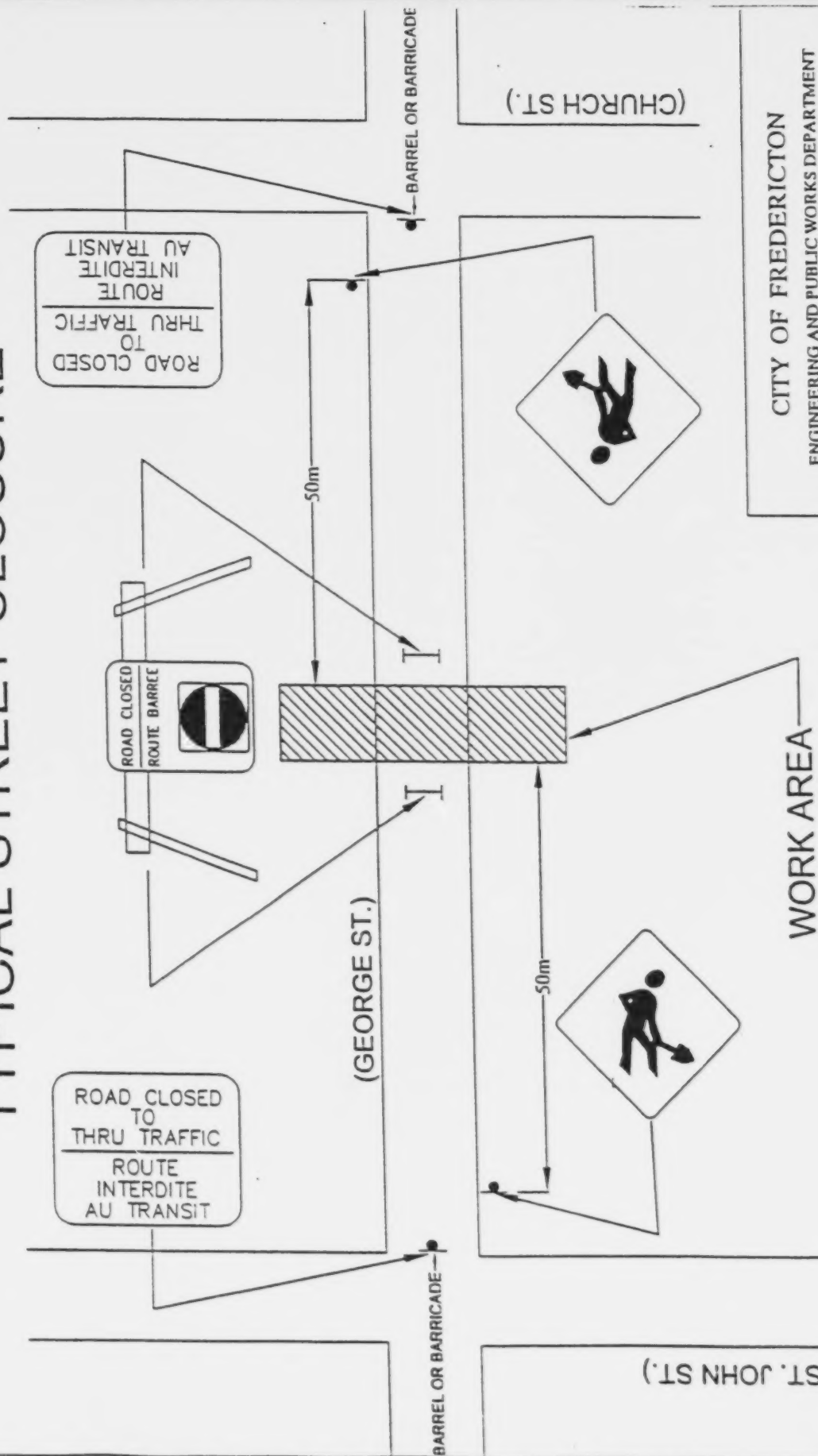
Don Murray	City Forester, Parks & Trees Division	460-2294
Public Works Dispatch		460-2038 460-2088
Public Works After Hour Emergencies		460-2027

APPENDIX "A"

City of Fredericton Standards For Construction Signage

2000/10/02

TYPICAL STREET CLOSURE



CITY OF FREDERICTON

ENGINEERING AND PUBLIC WORKS DEPARTMENT

TYPICAL STREET CLOSURE

DATE: 99-04-14

DWG. NO.: DR - 1

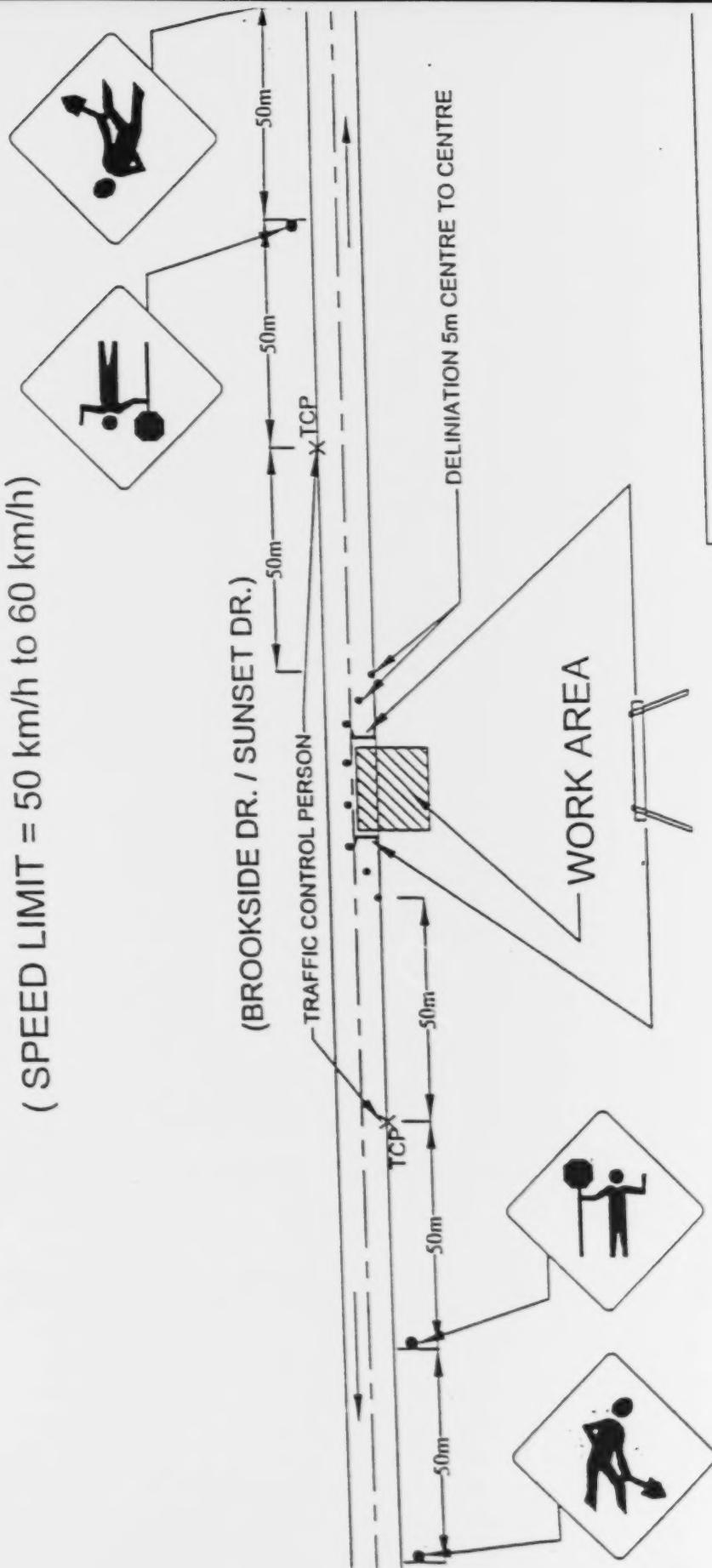
SCALE: N.T.S.

PROJECT NO.: 99-XX

(ST. JOHN ST.)

TWO LANE - TWO WAY STREETS ONE LANE CLOSED (< 1 DAY)

(SPEED LIMIT = 50 km/h to 60 km/h)

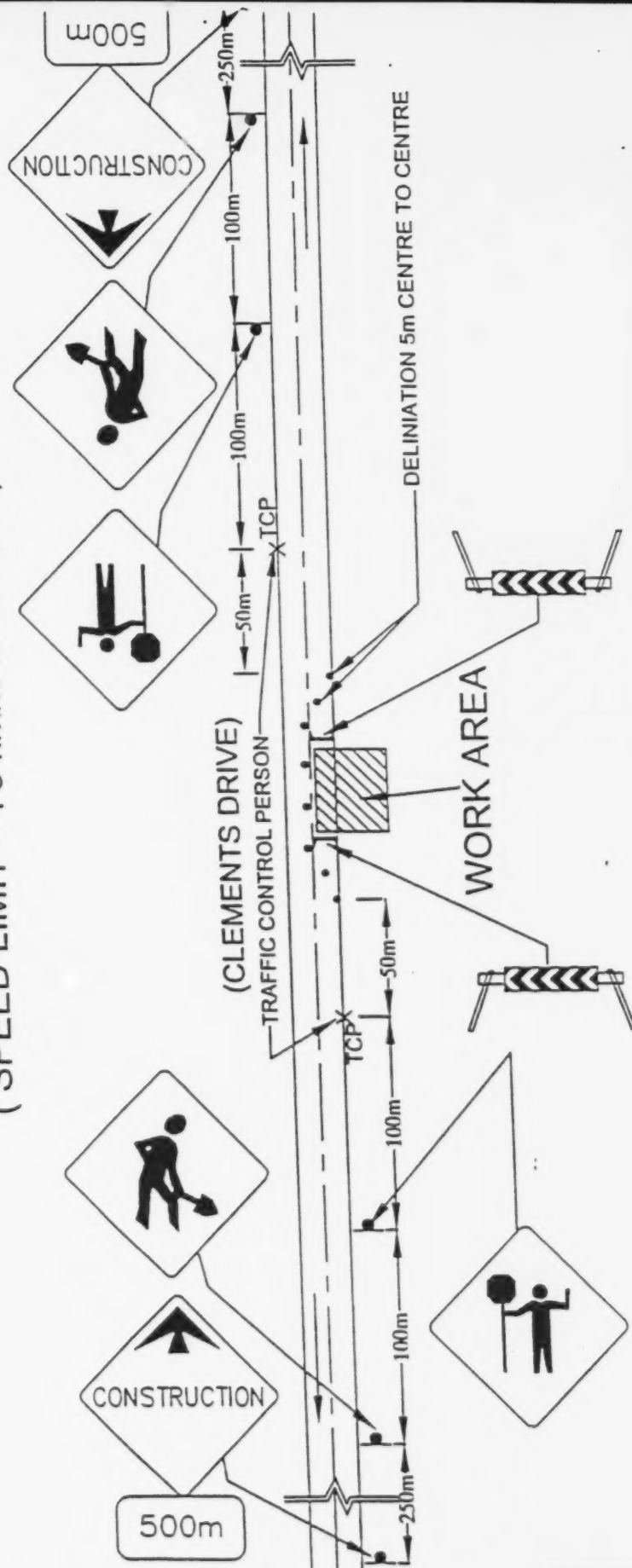


CITY OF FREDERICTON	
ENGINEERING AND PUBLIC WORKS DEPARTMENT	
TWO LANE - TWO WAY STREETS ONE LANE CLOSED (< 1 DAY)	
DATE: 99-04-14	DWG. NO.: DR - 2
SCALE: N.T.S.	PROJECT NO.: 99-XX

REFERENCE 6.5.1
N.B.D.O.T.

TWO LANE - TWO WAY STREETS (HIGHWAYS) ONE LANE CLOSED (< 1 DAY)

(SPEED LIMIT = 70 km/h to 80 km/h)



CITY OF FREDERICTON

ENGINEERING AND PUBLIC WORKS DEPARTMENT

TWO LANE - TWO WAY STREETS
ONE LANE CLOSED (< 1 DAY)

DATE: 99-04-14

DWG. NO.: DR - 3

SCALE: N.T.S.

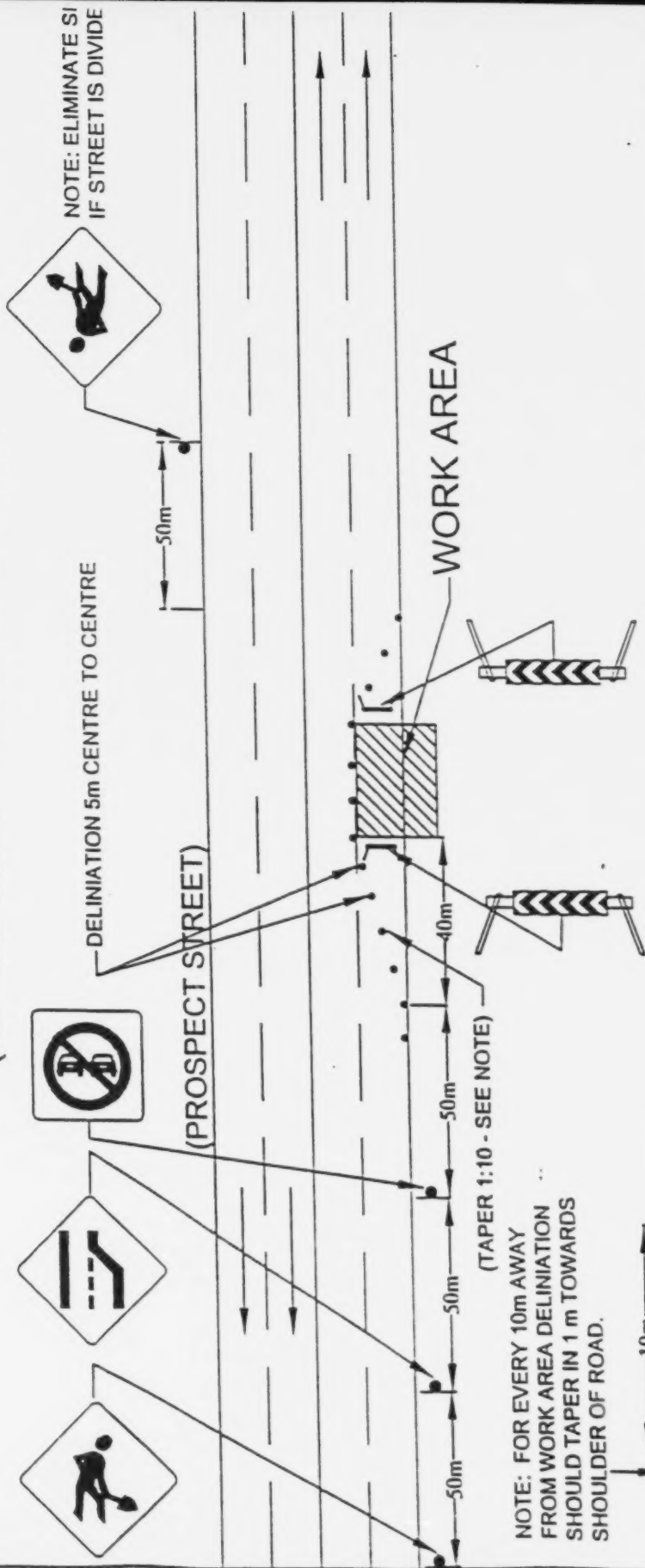
PROJECT NO.: 99-X

REFERENCE 6.5.1

N.B.D.

MULTI-LANE STREETS ONE LANE CLOSED (< 1 DAY)

(SPEED LIMIT = 50 km/h to 60 km/h)



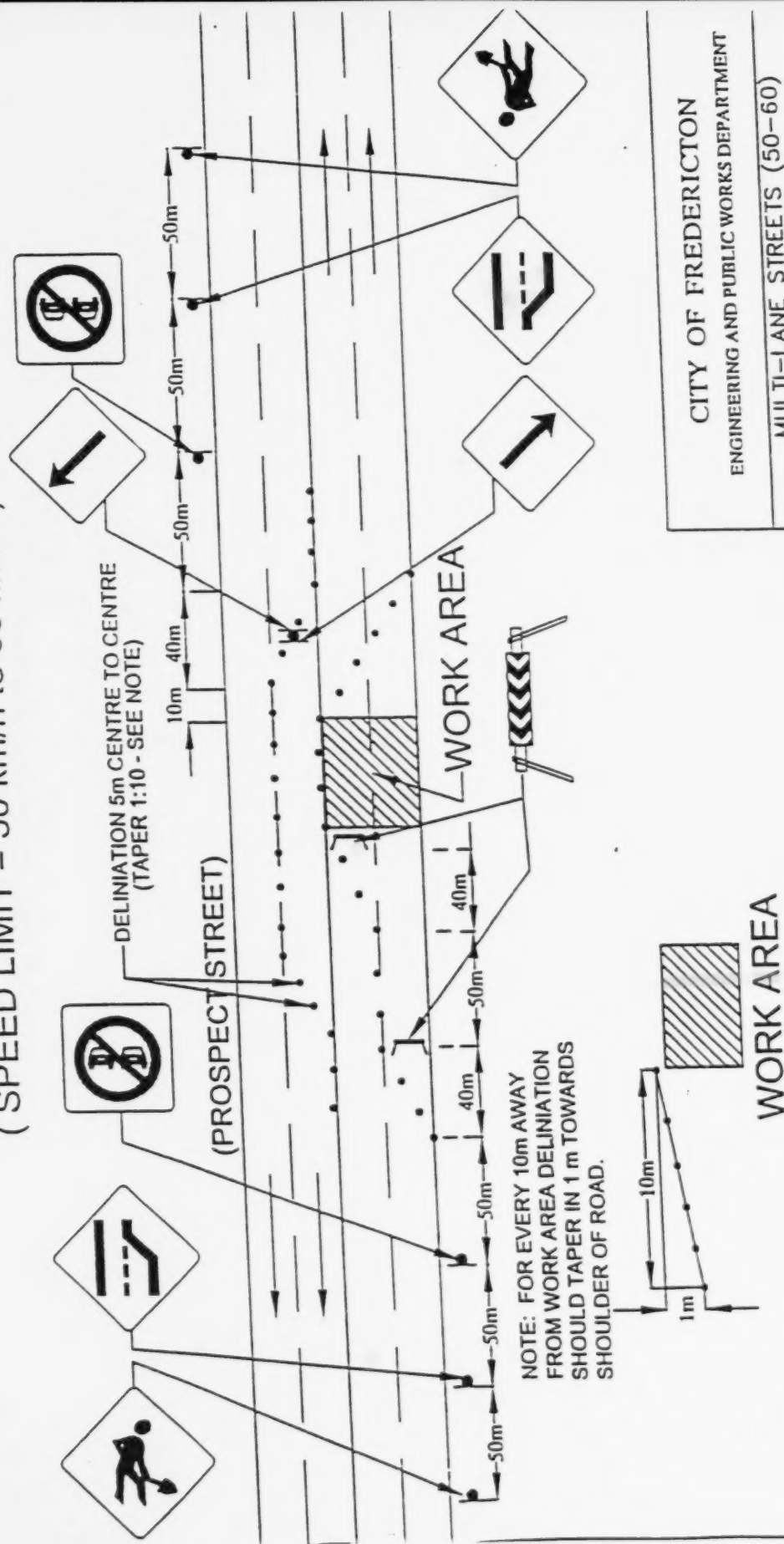
CITY OF FREDERICTON	
ENGINEERING AND PUBLIC WORKS DEPARTMENT	
MULTI-LANE STREETS (50-60)	
ONE LANE CLOSED (< 1 DAY)	
DATE: 99-04-14	DWG. NO.: DR - 4
SCALE: N.T.S.	PROJECT NO.: 99-X

WORK AREA

REFERENCE 7.4.4
N.B.D.O.T.

MULTI-LANE STREETS (HIGHWAYS)
TWO LANES CLOSED

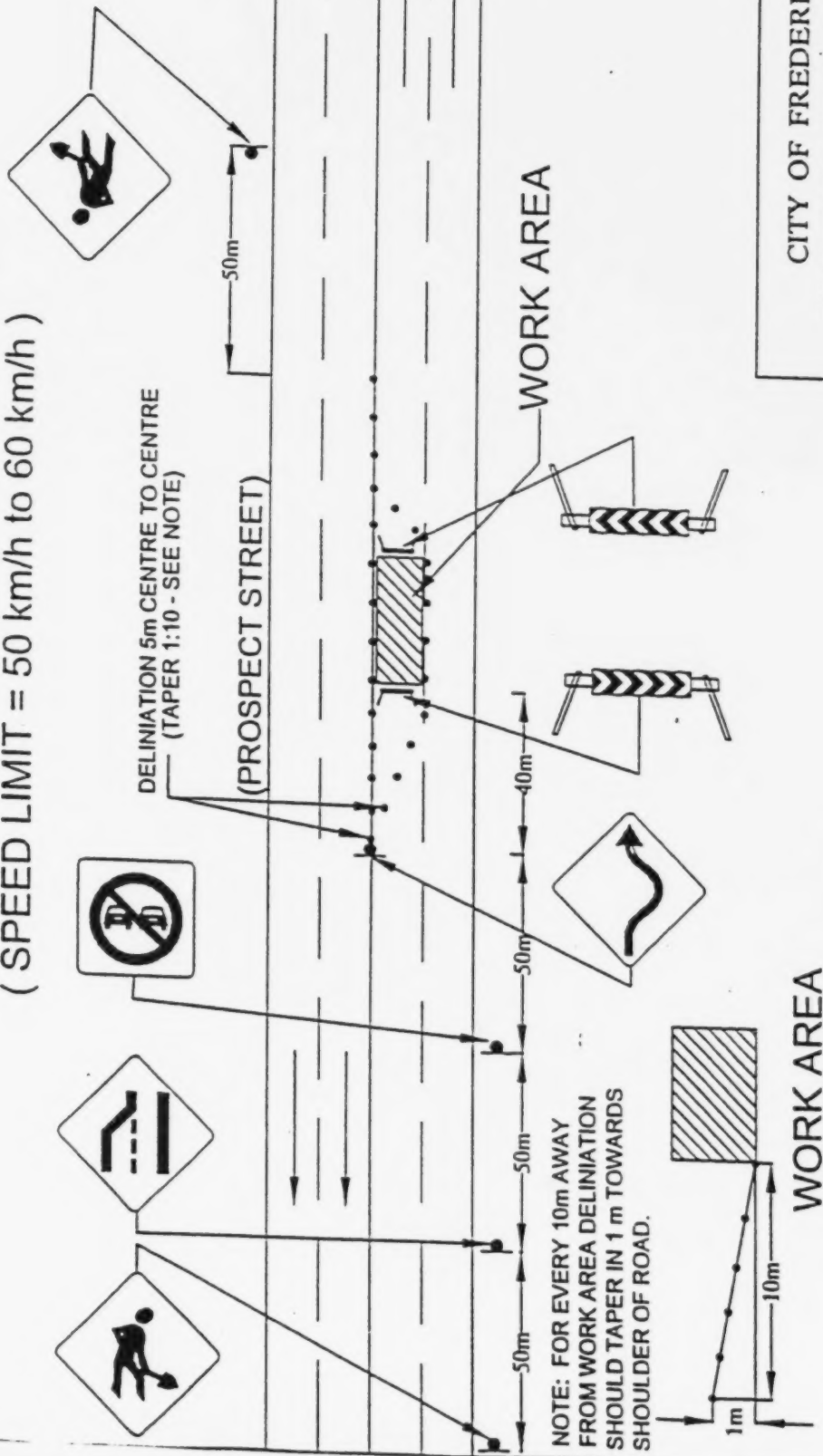
(SPEED LIMIT = 50 km/h to 60 km/h)



CITY OF FREDERICTON	
ENGINEERING AND PUBLIC WORKS DEPARTMENT	
MULTI-LANE STREETS (50-60)	
TWO LANES CLOSED	
DATE: 99-04-14	DWG. NO.: DR - 6
SCALE: N.T.S.	PROJECT NO.: 99-X7

MULTI-LANE STREETS (HIGHWAYS) CENTRE LANE CLOSED

(SPEED LIMIT = 50 km/h to 60 km/h)



WORK AREA

CITY OF FREDERICTON

ENGINEERING AND PUBLIC WORKS DEPARTMENT

MULTI-LANE STREETS (50-60)
CENTRE LANE CLOSED

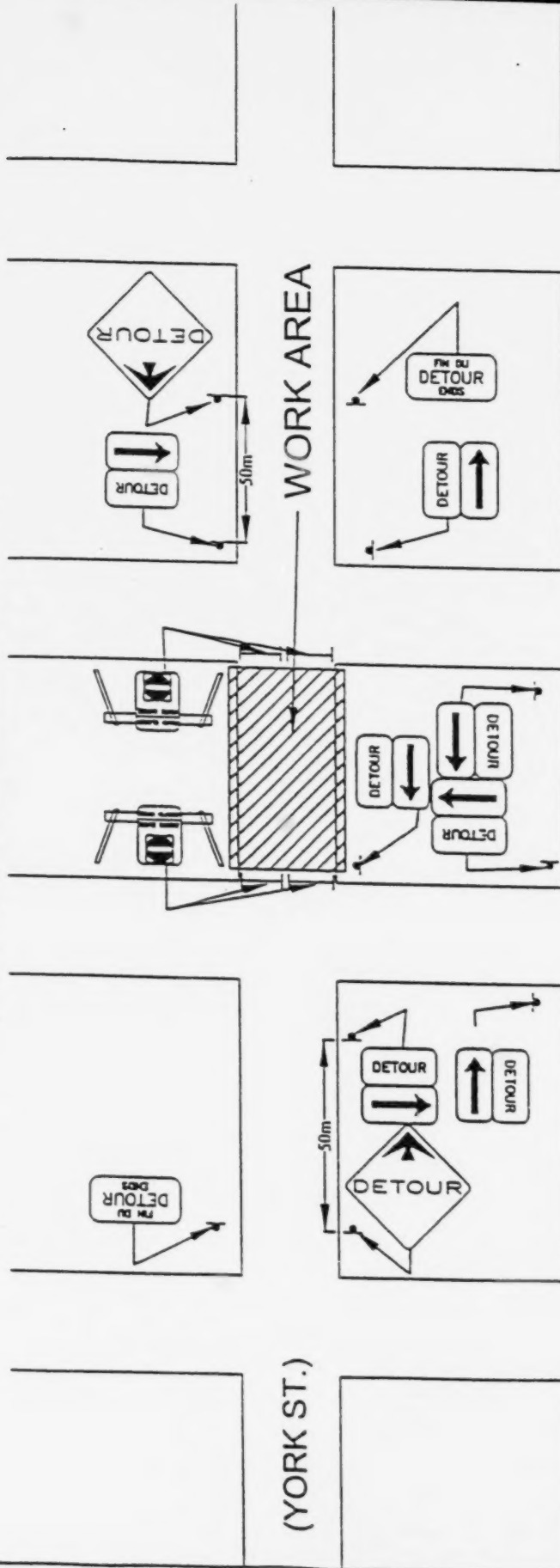
DATE: 99-04-14

DWG. NO.: DR - 7

SCALE: N.T.S.

PROJECT NO.: 99-XX

TYPICAL DETOUR



(GEORGE ST.)

(CHARLOTTE ST.)

(WESTMORLAND ST.)

CITY OF FREDERICTON

ENGINEERING AND PUBLIC WORKS DEPARTMENT

TYPICAL DETOUR SIGNING

DATE: 99-04-14

DWG. NO.: DR - B

SCALE: N.T.S.

PROJECT NO.: 99-X



MUNICIPAL SERVICE SYSTEMS

PART A: DESIGN GUIDELINE

11.0 NATURAL GAS PIPELINES

11.1 GENERAL

- 11.1.1 Natural gas pipelines proposed to be installed within municipal streets shall be located so as to not interfere with, damage or impede maintenance access to any existing municipal infrastructure.
- 11.1.2 The gas distribution system shall be designed, installed and maintained to meet or exceed the standard set out in all applicable Federal, Provincial and Municipal enactments, codes and specifications, and the Canadian Standards Association (CSA) Oil and Gas Pipeline Systems Standard.
- 11.1.3 Tracer wire, which facilitates the location of the pipeline with commercially available pipe locators, shall be installed on all pipelines.
- 11.1.4 Warning marker tape shall be installed in all gas pipeline trenches.
- 11.1.5 Unless considered impractical in the opinion of the Engineer, any pipeline extension shall be a minimum of one street block in length.

11.2 ENGINEERING PLAN

Prior to any work within the street right of way, a detail engineering plan must be submitted showing accurately the location, depth and dimensions of proposed pipelines and existing sewer pipes, watermains, service connections and other underground utilities within 3.0 metres of the proposed gas pipelines and also including pavement surface, curbs, drainage ditches, sidewalks, trees, street lights, fire hydrants, curb stops, valve boxes, property lines and other relevant features, with respect to the construction to be undertaken.

11.3 INSTALLATION WITHIN EXISTING STREETS

- 11.3.1 Unless otherwise authorized by the Engineer and subject to sections 11.3.5 and 11.3.6 of this guideline, gas pipelines shall be installed outside of the vehicular traveled way and located between 0.5 m and 1 m from the street line.
- 11.3.2 Wherever possible, trenchless technology methods shall be used.
- 11.3.3 Notwithstanding section 11.3.2, all service connection pipes which cross the vehicular traveled way must be installed using trenchless technology methods or alternatively gas pipelines shall be installed on both sides of the street in accordance with section 11.3.1 of this guideline.

11.3.4 Where it is necessary in the opinion of the Engineer to install pipelines within the vehicular travelled way, service connection pipes shall be installed to the boundary of each parcel abutting the street.

11.3.5 Horizontal separation of gas pipelines shall be a minimum of one and a half metres from water and sewer mains and other utilities.

11.3.6 Gas pipelines shall not be located within the bounds (tops of slope) of a drainage ditch.

11.3.7 Where there are existing structures (buildings, retaining walls, etc.) located at or near street lines, gas pipelines shall be located to accommodate the future reconstruction of such structures.

11.3.8 Gas pipelines shall be located such that the primary root systems of trees are not damaged. As a general rule, roots over 25 mm diameter shall not be damaged for trees with diameter less than 150 mm diameter; for trees with diameter greater than 150 mm, roots over 50 mm shall not be damaged.

11.4 INSTALLATION WITHIN NEW STREETS

11.4.1 Pipelines shall be located 1 metre inside of the street line.

11.4.2 All service connections which cross under the vehicular traveled way must be installed before completion of street construction or by using trenchless technology methods.

11.5 DEPTH OF COVER

The depth of cover of gas pipelines and service connections shall be a minimum of 60 cm below grade for local streets and a minimum of 75 cm below grade for all other street classes and shall comply with the CSA Oil and Gas Pipeline Systems Standard. The Engineer may require a greater depth to allow for future road reconstruction.

11.6 RECORD DRAWINGS

The utility shall provide record drawings to the Engineer in hard copy and electronic format compatible with the HRM GIS system, within thirty days of completing the installation of any of the works.

11.7 STREET RESTORATION

This section applies to the restoration of existing streets after the installation of natural gas pipelines.

11.7.1 All construction shall meet the requirements of the HRM Specification Standard Supplement together with the Standard Specification for Municipal Services, Part II, as developed by the Nova Scotia Road Builders Association and the Nova Scotia Consulting Engineers Association Joint Committee on Contract Documents.

11.7.2 All surfaces shall be restored to the same or better condition as previous to the pipeline installation to the satisfaction of the Engineer.

11.7.3 Upon approval by the Engineer, pipelines installed by trenching within the vehicular travelled way shall comply with the following:

11.7.3.1 Where the street has been paved within 5 years of the installation, the asphaltic or portland cement concrete pavement shall be cut and reinstated as indicated on standard detail drawings 7.02640.23 and 7.02640.24. and the entire paved surface shall be profiled and overlaid with a minimum of 50 mm of asphaltic concrete or entirely repaved for portland cement concrete surfaces.

11.7.3.2 Where it has been longer than 5 years since the street was last paved, the asphalt or concrete pavement shall be cut and reinstated as indicated on standard detail drawings 7.02640.23 and 7.02640.24.

11.7.3.3 Unless otherwise approved by the Engineer, pipe trenches shall be backfilled with type 1 gravel compacted to 100 % standard proctor and the minimum width of trench shall be 600 mm plus the pipe diameter.

11.7.4 Pipelines installed outside of the vehicular traveled way must be installed without damage to any sidewalks, trees, street lights, fire hydrants, curb stops, valve boxes or any other municipal infrastructure.

11.7.4.1 If any sidewalk is undermined or otherwise damaged in the opinion of the Engineer, then it shall be reconstructed to meet the requirements of Section 8.2 of this Guideline.





APPENDIX C

Guidelines for Installation of Pipelines on TPW Right-of-Ways
Source: Nova Scotia Transportation and Public Works



© Jacques Whitford and Associates Limited

Guidelines for Installation of Pipelines on TPW Right-of-Ways

1. **High Pressure Pipelines (300 PSI and higher)**
 - a) 100 Series Highways - no installation of high pressure pipelines will be permitted on 100 Series Highways right-of-ways in any form whatsoever.
 - b) Trunks, Routes - high pressure pipelines may be installed on the right-of-way at a minimum of 6 metres from the edge of the pavement. All work for construction and maintenance of these pipelines must take place such that two-way traffic is maintained at all times.
 - c) Local Roads - See above for Trunks and Routes.
2. **Intermediate Pressure Pipelines (Defined as 100 - 300 PSI)**
 - a) 100 Series Highways - no installation of intermediate pressure pipe lines will be permitted on 100 Series Highways rights-of-ways in any form whatsoever.
 - b) Trunks, Routes - intermediate pressure pipelines may be located on highway right-of-ways, a minimum of 6 metres from the edge of the pavement. All work for construction and maintenance of these pipelines must take place such that two-way traffic is maintained at all times. Note that in urban type areas, hereby defined as "areas which currently have sewer and water services," intermediate pressure pipelines may be allowed in the roadway shoulder; where the utility can prove, to the satisfaction of the Department that there is no other viable route for the line, considerations as follows:
 - a) Physical constraints (rock, limited ROW etc) make it impossible or extremely expensive to conform with the normal 6 m offset.
 - b) The Department is not planning construction activity which would modify the location or profile of the roadway.
 - c) Construction will not cause traffic delays or concerns which are, in the Department's opinion, unacceptable.
 - D) The Department is satisfied that Department operations and maintenance will not be unduly affected by the line.

These lines must be at a minimum distance of 1 metre from the edge of the pavement. Cover is to be a minimum depth of 1.2 metres to the top of the pipe, bottom of the pipe must be a minimum 1.5m below original grade line (ie a 200 mm pipe would be 1.5 m to bottom and 1.3 m depth of cover). The first 0.6 m from the bottom of the excavation must be backfilled with a

Type 2 granular backfill. The next 0.6 m must be made of native material and the last 0.3 m should be 0.15 m. of Type 2 material with 0.15 m of Type 1 to match the original grade line. Regular bonding requirements, and deposits apply as per other utility installations.

c) **Other Roads**

Paved local roads with a volume of 1000 vehicles/day or greater - as per trunks and routes.

Paved local roads with a volume of less 1000 vehicles/day - intermediate pressure pipelines may be installed from the shoulder out to the edge of the right-of-way, where the utility can prove, to the satisfaction of the Department, that there is no other viable route for the line, conditions apply as per trunks and routes in urban areas.

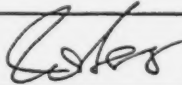
Gravel Local roads - intermediate pressure lines may be installed in the roadbed from the edge of ditch in up to 1 meter towards the roadway centerline, where the utility can prove, to the satisfaction of the Department, that there is no other viable route for the line, conditions apply as per trunks and routes in urban areas.

Note: At all intersections between transmission lines and cross culverts, the pipeline must pass underneath the cross culvert.

3. **Low Pressure Distribution Lines (Defined as less 100 PSI)**

- a) 100 Series Highways - no installation of low pressure pipelines will be permitted on 100 Series Highways right-of-ways in any form whatsoever.
- b) Trunk and Routes - low pressure lines are permitted on these roads, a minimum of 1 metre from the edge of the pavement (one metre in from edge of ditch for gravel surfaced roads). Cover requirements on roadway structure as per trunks and routes, outside roadway structure 0.75 m to top of pipe.
- c) Local Roads - as per trunks and routes.

Approved By:



7 Pole Lines, Pipelines & Fiber Optics(cont'd):

7.06 Construction of Gas Pipelines Longitudinally Within or Adjacent to Highway Right-of-Way.

100 Series Highways:

Gathering, distribution, transmission and service lines are not permitted within the highway right-of-way or within thirty (30) meters of the edge of the highway right-of-way, except in extenuating circumstances where it can be demonstrated that no other viable alternatives exists. Approval of the Executive Director - District Operations shall be required.

Trunks And Collectors:

Gathering, distribution and transmission lines are not permitted within the right-of-way or within five (5) metres of the edge of the right-of-way, except in extenuating circumstances; as with 100 Series Highways, approval of the EDDO is required. Service lines may be permitted within the right-of-way, with approval of the Area Manager.

Local Roads:

Gathering, distribution or transmission lines not permitted within the right-of-way or within five (5) metres of the right-of-way, except in extenuating circumstances, under which the approval of the EDDO is required. Service lines may be permitted within the right-of-way, with approval of the Area Manager.

Area Manager shall consider such things as (but not limited to) existing services, future service requirements and potential for development and demand for infrastructure upgrades in issuing permits and approval of pipeline location.

A "Breaking of Soil" permit shall be issued by the Area Manager where the placement of a gas pipeline is approved within the right-of-way. All applicable conditions shall apply, including deposit fees. A letter of approval shall be issued by the Area Manager where placement of a pipeline is approved within one hundred (100) metres of the centerline of a highway [Public Highways Act Sections 22 and 42] but is located outside the right-of-way. Requirements of the applicant's submission shall be as stated in Pipeline Crossing Highway Policy regarding drawings etc.

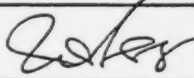
Acceptable pipeline material and construction standards shall be provided and standards shall be equal to or exceed those contained in the latest CSA standards Z662-96, Z183 and Z184 for oil and gas pipelines, respectively.

Pipeline Definitions (from CSA Z662-96)

Gathering Line:

A pipeline that conveys gas from a wellhead assembly to a treatment plant, transmission line, distribution line or service line.

Approved By:



7 Pole Lines, Pipelines & Fiber Optics(cont'd):

7.06 Construction of Gas Pipelines Longitudinally Within or Adjacent to Highway Right-of-Way

Transmission Line:

A pipeline in a gas transmission system that conveys gas from a gathering line, treatment plant, storage facility or field collection point in a gas field to a distribution line, service line storage facility of another transmission line.

Distribution Line:

A pipeline in a gas distribution system that conveys gas to individual service lines or other distribution lines.

Service Line:

A pipeline that conveys gas from a gathering line, transmission line, distribution line or another service line to a customer.

7.07 Underground Gas Pipelines Crossing TPW Right-of-Way

7.07.1 Application Procedure:

Applications for the crossing of any public roads under the jurisdiction of the Nova Scotia Department of Transportation and Public Works by oil and/or gas pipelines shall be submitted to the appropriate Area Office of the Nova Scotia Department of Transportation and Public Works.

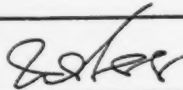
The applicant shall allow a minimum 30 working days for the application processing. Permits shall be issued in the name of the owner of the pipeline.

Applications for oil and/or gas pipelines crossing public roads other than those under the jurisdiction of Transportation and Public Works shall be submitted to the appropriate municipal unit.

A damage deposit in an amount specified by the Area Manager is required prior to issuance of a permit. This deposit shall consist of a certified cheque, money order or bank draft, in a form satisfactory to the Department and made payable to the Department of Transportation and Public Works, Province of Nova Scotia.

The damage deposit will be held for one (1) year following completion of the work. It will be forfeited to the Department, if the applicant neglects or refuses to proceed with and complete the work according to the terms outlined in the application and to the satisfaction of the Area Manager. The Area Manager shall release the damage deposit after one (1) year provided any deficiencies have been corrected to his/her satisfaction.

Approved By:



7 Pole Lines, Pipelines & Fiber Optics(cont'd):

7.07 Underground Gas Pipelines Crossing Transportation and Public Works Right-of-Way

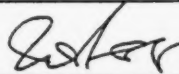
7.07.2 Highways Under the Jurisdiction of Transportation and Public Works:

1. The application should clearly state the purpose of the application, the type of the facility, method of construction, and provide the number and/or name of the highway involved, and particulars of the contact person responsible for the application.
2. Incomplete applications without proper documentation will be returned without review.
3. A copy of the permit issued shall be provided to the contractor and made available for verification at the construction site at all times.
4. No construction may be undertaken without a valid permit.
5. Only work covered by the original permit can be performed at the site. Any additional work, variation or change from the proposal covered by the original permit requires additional approval(s).
6. Each of the drawings submitted with application shall have a number for reference purposes.
7. The application should contain two copies of the crossing plan for each proposed crossing location.

Each crossing plan shall include (in accordance with construction a-e):

- a) Key plan at a suggested scale of 1:50,000 indicating the proposed crossing including: appropriate highway name and/or number, reference to an identifiable landmark such as road intersection, bridge crossing, etc..., and county.
- b) Detailed plan of the crossing at a minimum scale of 1:1,000 showing: the proposed method of installation, the proposed angle of the crossing and the pipeline alignment to a minimum distance of 50 metres on each side of the highway right-of-way, coordinate tie in at the intersection of the pipeline and the road.

Approved By:



7 Pole Lines, Pipelines & Fiber Optics(cont'd):

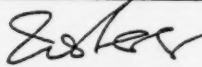
7.07.2 Highways Under the Jurisdiction of Transportation and Public Works (cont'd):

- c) Proposed survey cross section of the crossing shall have the following minimum scales: 1:500 horizontal and 1:100 vertical. Vertical exaggeration shall be 5:1.

The cross section has to show:

- 1) Width of the existing highway right-of-way.
 - 2) Width of proposed highway right-of-way (if known).
 - 3) Type of road surface: i.e., paved, graveled or dirt.
 - 4) Minimum depth of cover - 1.2 metres below the lowest point in the highway right-of-way cross section or 2.0 metres below the centreline surface elevation, whichever is greater.
- d) Profile along the centreline of the highway or road for a minimum distance of 400 metres in each direction from the crossing at a minimum horizontal scale of 1:5,000 and vertical 1:200 unless otherwise approve by the Area Manager.
- e) Pipe specifications of pipeline at the crossing site including:
1. Carrier pipe specifications:
 - 1) Outside Diameter
 - 2) Wall Thickness
 - 3) Maximum Operating Pressure
 - 4) Pipe Classification
 2. Casing pipe specifications (cased crossing only):
 - 1) Outside Diameter
 - 2) Wall Thickness
8. Standard Plans are acceptable for site crossings employing open cut methods of excavation for various soil conditions unless a site specific plan is requested by the Area Manager. Site specific plans will be required where future road improvements are anticipated. The plans shall include: standard cross section, installation procedure and traffic control requirements.
9. As-built plans shall be provided upon completion. The plans shall include all information contained in the crossing plan with field elevations indicating finished roadway and pipeline grades.

Approved By:



7 Pole Lines, Pipelines & Fiber Optics(cont'd):

7.07.3 General Construction Guidelines

1. Construction Commencement and Completion:

The applicant shall contact the appropriate Department Area Manager or Operations Supervisor at least two working days prior to commencement of construction to review the project.

The applicant shall contact the appropriate Area Manager of Operations Supervisor at least two working days prior to construction completion to allow for site inspection, if required.

2. Acceptable Pipeline Material and Construction Standards:

Pipeline material and Construction Standards for all pipe placed within the Department Right-of-Way shall comply with Federal pipeline requirements where the pipeline is regulated by Federal Law, and shall comply with pipeline requirements of the Province of Nova Scotia where the pipeline is regulated by the Province of Nova Scotia.

3. Method of Crossing:

The open cut method for pipeline installation at all 100 - Series Highway crossings is not permitted.

The open cut method for pipeline installation at any other public highway under the jurisdiction of Transportation and Public Works is not permitted without prior approval from Transportation and Public Works.

The crossing of any highway constructed by boring or jacking methods shall be carried out in such a manner that the road grade is not disturbed.

The proposed method of installation shall be shown on the plan of the crossing attached to the application.

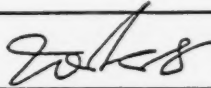
4. Minimum Depth of Cover on the Highway or Road Right-of-Way:

The minimum depth of cover over the pipeline where it crosses the right-of-way of a highway or road shall be 1.2 metres under the lowest point in the cross section or 2.0 metres below the centreline surface elevation, whichever is greater.

Depths of cover greater than the above shall be used at specific crossings if so directed by the Area Manager. The Area Manager shall request additional cover, if required, for future roadway improvements.

7.07 Underground Gas Pipelines Crossing Transportation and Public Works Right-of-Way

Approved By:



7 Pole Lines, Pipelines & Fiber Optics(cont'd):

5. Intersection Angle of Pipeline Crossing:

The desirable angle of crossing is between 70 and 90 degrees, however, other angles may also be accepted in special circumstances, as approved by the Area Manager.

6. Cased Crossing:

Where casing is used, it shall be continuous and inserted by boring or other approved method.

7. Diameter of Casing:

The diameter of the casing shall be at least 5 centimetres greater than the diameter of the carrier pipe. An exception to this is steel casing of polyethylene pipe, where the next size diameter of may be used.

8. Minimum Length of Casing:

The casing shall extend across full width of the highway or road right-of-way.

9. Slope of Casing:

Casing shall be sloped from one end to the other with a minimum gradient of 1 in 120. The casing shall be satisfactorily sealed to the carrier pipe at both ends.

10. Spacer Insulation of Casing and Cathodic Protection:

All cased crossing shall be provided with sufficient spacer insulators to prevent the carrier pipe from touching the casing pipe and to prevent transmission of electric currents between the carrier pipe and the casing pipe. Where cathodic protection is planned, the test leads shall be outside the outer boundaries of the right-of-way of the highway or road.

11. Venting of Casing Pipe:

Vents shall not be placed within the limits of the highway right-of-way.

12. Casing Not to Carry Other Utilities:

No cables of any kind shall be place within the casing of any pipeline.

Approved By:



7 Pole Lines, Pipelines & Fiber Optics(cont'd):

7.07.3 General Construction Guidelines

13. Bored or Augured Crossing:

Casing shall be fitted into a bored or augured hole of such diameter as to provide a snug fit for the casing.

14. Bore Size:

The bore size for heavy wall pipe shall be no more than one pipe size larger than the installed pipe. If the bore is larger than one pipe size, a casing pipe the size of the bore shall be installed.

15. Boring in Non-Cohesive Soils:

Closed boring method shall be used in non-cohesive soil conditions.

16. Drainage Structures:

A pipeline shall not run through a culvert or drainage structure.

17. Horizontal and Vertical Pipeline Bends:

No horizontal and/or vertical pipe bends are permitted throughout the right-of-way and within 30 metres of the right-of-way boundaries of a highway, unless approval is obtained from the appropriate Area Manager.

18. Open Excavation, Material and Equipment Storage:

No open excavation shall be constructed, nor shall any material or equipment be deposited or stored any closer than six (6) metres of a bridge or earth retaining structure (without special consent of the appropriate Area Manager), and four (4) metres from the edge of shoulder of a highway, or a toe of side slope, whichever distance is greater.

19. Backfilling of Open Trenches:

The backfilling of all trenches in the highway right-of-way or within six (6) metres of bridge pier or earth retaining structure shall be undertaken immediately after the installation has been placed and passed any necessary inspection. Backfill material shall consist of acceptable excavated material, thoroughly compacted with mechanical compactors. The pavement structure shall be equivalent to the existing asphalt thickness with a minimum subbase thickness of 400 millimeters, consisting of Type 2 and Type 1 granular material. The owner of the pipeline will be held responsible for any settling in backfill for a period of one year after completion of the work.

Approved By:



7 Pole Lines, Pipelines & Fiber Optics(cont'd):

7.07.3 General Construction Guidelines:

20. Waste Material:

All waste material shall be removed and all disturbed areas shall be leveled and trimmed in an approved manner and reseeded, where necessary, to restore the right-of-way to at least as good as original or better conditions.

21. Work in the Median:

No work shall be undertaken in the median of a divided highway unless approved by the Area Manager.

22. Surface Markers:

Surface Markers, conforming to CSA Standards, shall be placed within one (1) metre of the edge of ROW or as otherwise instructed by the Area Manager.

23. Construction Safety:

All reasonable precautions shall be undertaken during construction to protect and safeguard public safety and property owners. This includes using traffic control procedures in accordance with the latest edition of the Nova Scotia Traffic Control Manual. At no time, shall the highway or public roadway be closed to traffic. Where normal traffic patterns are to be interrupted due to ditching or other operations, prior approval must be redundant.

No pipeline construction will take place during darkness or reduced visibility.

GOVERNMENT OF NOVA SCOTIA MANAGEMENT MANUALS

MANUAL 23

DEPARTMENT OF TRANSPORTATION & PUBLIC WORKS MANAGEMENT

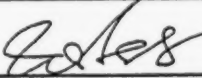
CHAPTER 8

Construction and Maintenance

PAGE 29.13

DATE 98 08 01

Approved By:



7 Pole Lines, Pipelines & Fiber Optics(cont'd):

1.0.0. DEFINITIONS

DEPARTMENT, DOT&PW, TPW AND DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS. The Department of Transportation and Public Works of the Province of Nova Scotia.

DEPUTY MINISTER. The Deputy Minister of Transportation and Public Works of the Province of Nova Scotia.

AREA MANAGER. The position of Area Manager for the Department of Transportation and Public Works acting directly or through their Operation Supervisor or other representatives, duly authorized by the Executive Director District Operations, and acting only within the scope of the particular duties assigned to him/her or within the scope of the authority vested in him/her.

HIGHWAYS. The whole Right-of-Way which is reserved for use in constructing the roadway and its appurtenances.

INSPECTOR. The authorized assistant to the Area Manager assigned to make inspection of work performed or being performed and materials furnished or being furnished.

MINISTER. The Honourable Minister of Transportation and Public Works of the Province of Nova Scotia.

PLANS. Any Official Plans, Profiles, typical Cross-Sections, Working Drawings, Supplemental Drawings or exact reproductions thereof, approved by the Area Manager, which show the location, character, dimensions and details of the work to be done, and which are to be considered as a part of the Contract.

PROVINCE. The Province of Nova Scotia

TRAFFIC CONTROL MANUAL. N.S. Department of Transportation and Public Works Temporary Workplace Traffic Control Manual.





APPENDIX D

Source: The City of Calgary

Sheet 5 - Residential - Parking Both Sides

(showing gas pipe in easement with alternative in the asphaltic surface)

Sheet 6 - Collection

(showing gas pipe in easement with alternative under the asphaltic surface)

Sheet 13 - Undivided Major

(showing gas pipe adjacent property line or under the asphaltic surface)

Sheet 15 - Standard Industrial Street

(showing gas pipe adjacent property line or under the asphaltic surface)

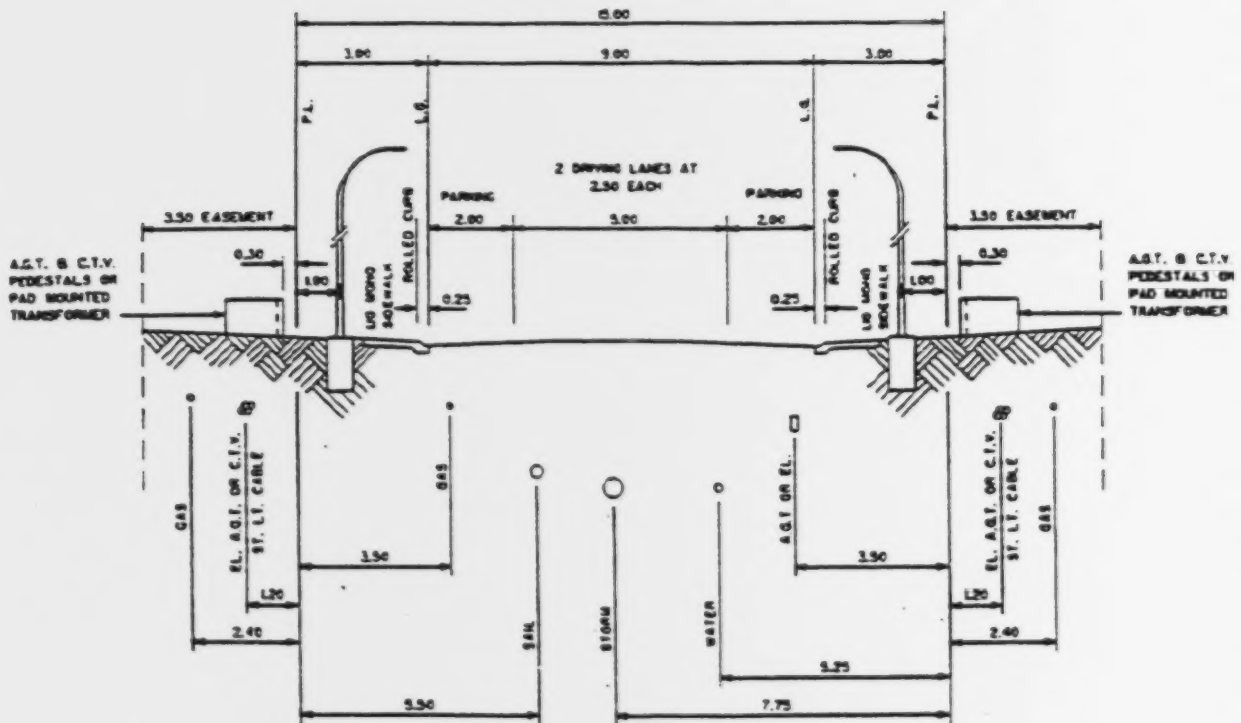
Source: Alberta Energy Utilities Board

Figure 4.5 Typical Water/Canal Crossing

Figure 4.9 Pipe Installation in Rural Road/Highway Rights-of-Way, with reference Figure 4.3



**TYPICAL RESIDENTIAL
(REVISED STANDARD)
(ROAD WIDTH REDUCED 0.50m)**



CARRIAGEWAY ALTERNATES

- A. CHURNED
- B. DISHED
- C. X-FALLED

NOTE: FOR CHURNED SECTION

CURB REQUIRED ON BOTH SIDES.

FOR DISHED SECTION

MINIMUM GRADE OF 1% REQUIRED WITH MAXIMUM DRAINAGE LENGTH OF 150.00.

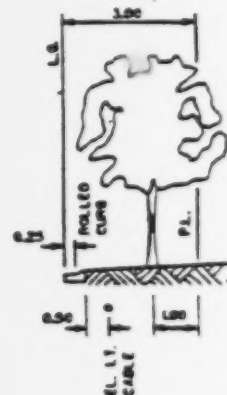
FOR X-FALLED SECTION

CURB REQUIRED ON LOW SIDE.

NOTE: - HYDRANT & SERVICE VALVES SHALL MAINTAIN A MIN. OF 2.50 SEPARATION TO THE CENTRE LINE OF POWER POLES & STREET LIGHTING POLES.

- HYDRANT & SERVICE VALVES SHALL MAINTAIN A MIN. OF 3.00 SEPARATION TO THE EDGE OF TRANSFORMER, PULL BOX / JUNCTION TERMINALS AND OTHER SURFACE STRUCTURES.

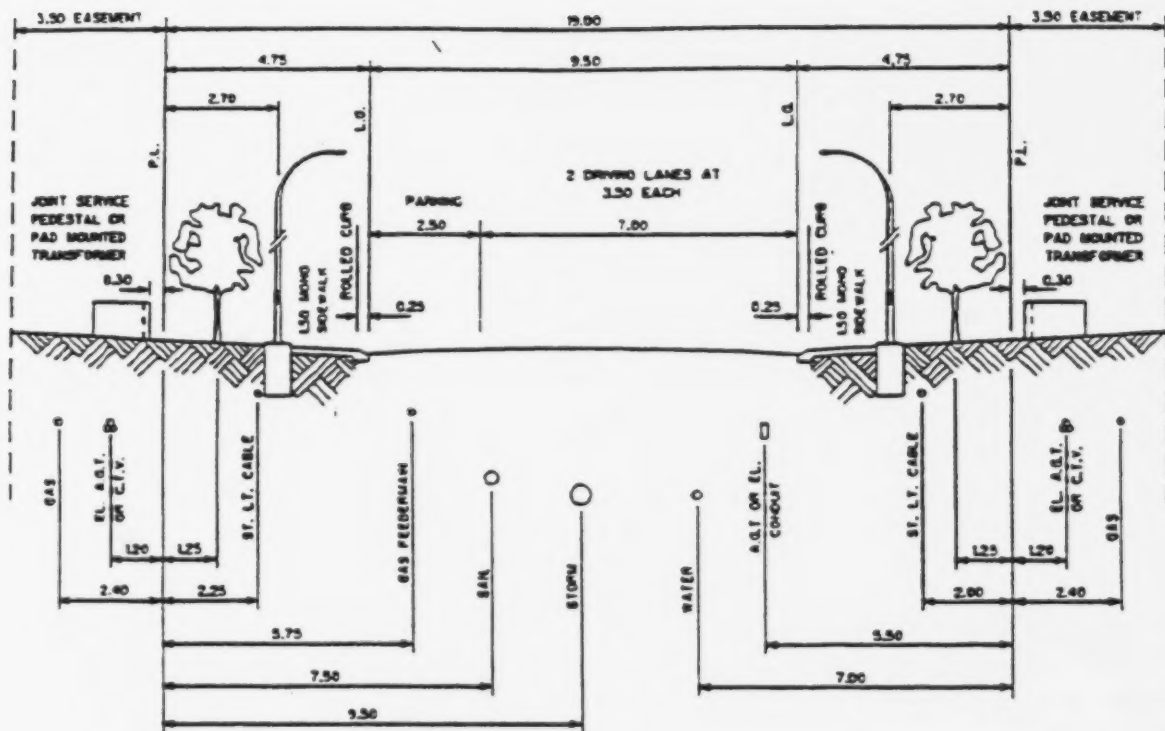
NOTE: - HYDRANT ON 0.75 LINE.
- HYDRANT VALVES ON 4.25 LINE.
- SERVICE VALVES ON 0.50 LINE.
- PRE-INSTALLED SERVICE CONNECTIONS TO BE INSTALLED 3.50 INSIDE P.L. OR 5.00 INSIDE THE P.L. WHEN CROSSING GAS AND ONE OTHER SHALLOW UTILITY.
- ST. LT. CABLE TO BE INSTALLED IN EASEMENTS ONLY IF WATER IS SERVED FROM THE FRONT.
- ST. LT. CABLE CENTRED IN 1.50 EASEMENT WHERE THERE IS NO GAS EASEMENT.



**ALTERNATIVE WITH
NO SIDEWALK**

- ENVIRONMENTAL GUIDELINE 1,000
VEHICLES PER DAY

3 95 - 05 ALTERNATIVE WITH NO SIDEWALK DETAIL ADDED 2 95 - 05 NOTES REVISED 1 95 - 03 NOTE ADDED		Drawn: [Signature] Date: 95 - 05 Scale: 1:100 App'd: [Signature] City Engineer	THE CITY OF CALGARY RESIDENTIAL - PARKING BOTH SIDES 15.00m R/W 9.00m ROAD	Sheet: 5 File Number: 454.0006.039
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- NOTE:
- HYDRANTS ON 2.45 LINE.
 - HYDRANT VALVES ON 6.50 LINE.
 - SERVICE VALVES ON 1.25 LINE.
 - TREES ON 1.25 LINE.
 - PRE-INSTALLED SERVICE CONNECTIONS TO BE INSTALLED 3.50m INSIDE P.L. OR 5.00m INSIDE THE P.L. WHEN CROSSING GAS AND ONE OTHER SHALLOW UTILITY.
 - POWER POLES, STREETLIGHT POLES, AND ALL OTHER SURFACE STRUCTURES SHALL MAINTAIN A MIN. OF 3.00m CLEARANCE FROM HYDRANT.

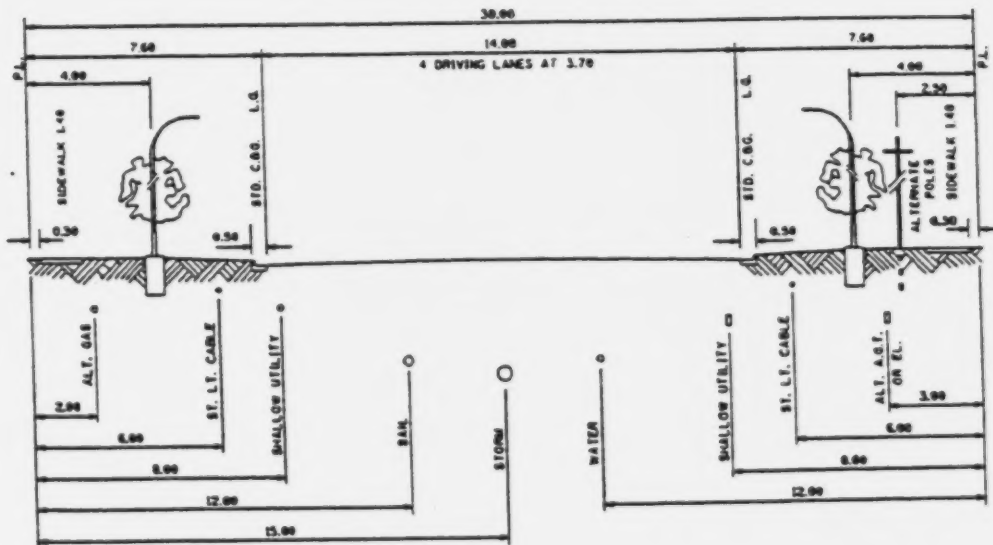
NOTE:
THIS STANDARD OF COLLECTOR MAY ONLY BE USED WHERE IT DOES NOT ADJUT RESIDENTIAL FRONTAGE OR OTHER PARKING ATTRACTOR ON ONE SIDE.

OPTIONAL STANDARD

- 1.40 SEPARATE SIDEWALK WITH B.W. 0.30 TO REPLACE MONO. SIDEWALK AS AN ALTERNATIVE WITH TREE AND SERVICE VALVE ALIGNMENT TO BE ADAPTED TO TO THE 2.30m LINE AND THE ST. LT. CABLE ON THE 3.75m LINE.

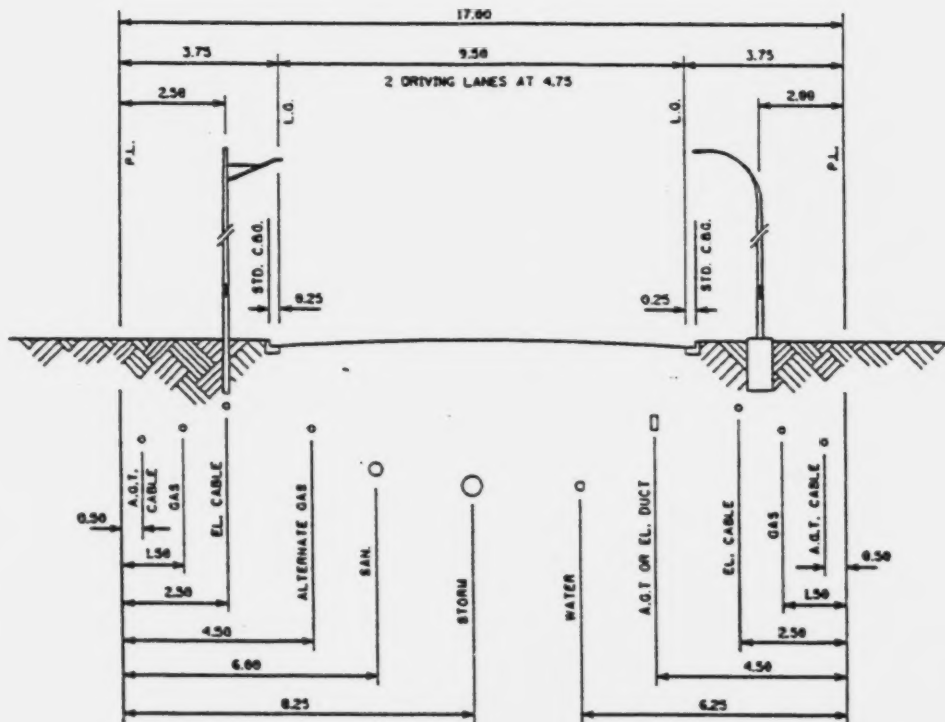
Small Project Assessment/Policy Worksheet (05-0000002) .dgn

1 195 - 06 R/W, L.C. & UTILITY DIMENSIONS REVISED		Drawn A.T.R.	Date JULY '94	THE CITY OF CALGARY	Sheet 6
140 Darko	Revision	Approved for City Engineer		COLLECTOR PARKING ONE SIDE 19.00m R/W. 9.50m ROAD	File Number 454.1008.022



- NOTES:
- HYDRANTS ON 4.00 LINE.
 - HYDRANT VALVES ON 12.00 LINE.
 - SERVICE VALVES ON 2.50 LINE.
 - TREES ON 4.00 LINE.
 - POWER POLES, STREET LIGHT POLES, TRANSFORMER BOXES AND ALL OTHER SURFACE STRUCTURES SHALL MAINTAIN A MIN. OF 3.00m CLEARANCE FROM HYDRANT.
 - GAS FEEDER MAINS IN CARRIAGE WAY, DISTRIBUTION LINE IN BOULEVARD, OPPOSITE SIDE FROM OVERHEAD.
 - ALL TREES TO BE SHALLOW ROOT SPECIES.

Drawn R.B.T.		Date JULY '94	THE CITY OF CALGARY Engineering & Construction Planning Department	Sheet
Scale 1m = 0.1m		App'd for [Signature]		13
1 94-09 CHANGE SHALLOW UTILITY O/S		App'd [Signature]	UNDIVIDED MAJOR	File Number
No.	Date	Revision	30.00m R/W, 14.80m ROAD	454.1008.025



- NOTE: - HYDRANTS ON 2.50 LINE.
 OPPOSITE SIDE TO EL. POWER POLE)
 - HYDRANT VALVES ON 3.50 LINE.
 - SERVICE VALVES ON 2.50 LINE.
 - SERVICE VALVES ON 2.50 LINE
 WITH OVERHEAD POLES.
 - SERVICE VALVES ON 2.00 LINE
 WITH LIGHT STANDARDS.
 - POWER POLES, STREETLIGHT
 POLES, TRANSFORMER BOXES AND
 ALL OTHER SURFACE STRUCTURES
 SHALL MAINTAIN A MIN. OF 3.00m
 CLEARANCE FROM HYDRANT.
 - TEST MANHOLES ON 2.00 LINE.

1 50 - 10 ADD TEST MANHOLE NOTE		Drawn R.B.T.		Date JULY '94	THE CITY OF CALGARY STANDARD INDUSTRIAL STREET - NO PARKING 17.00m R/W. 9.50m ROAD	Sheet	15 File Number 454.1008.024
No.	Date	App'd	Scale 1m = 0 1m	Approved for City Engineer			

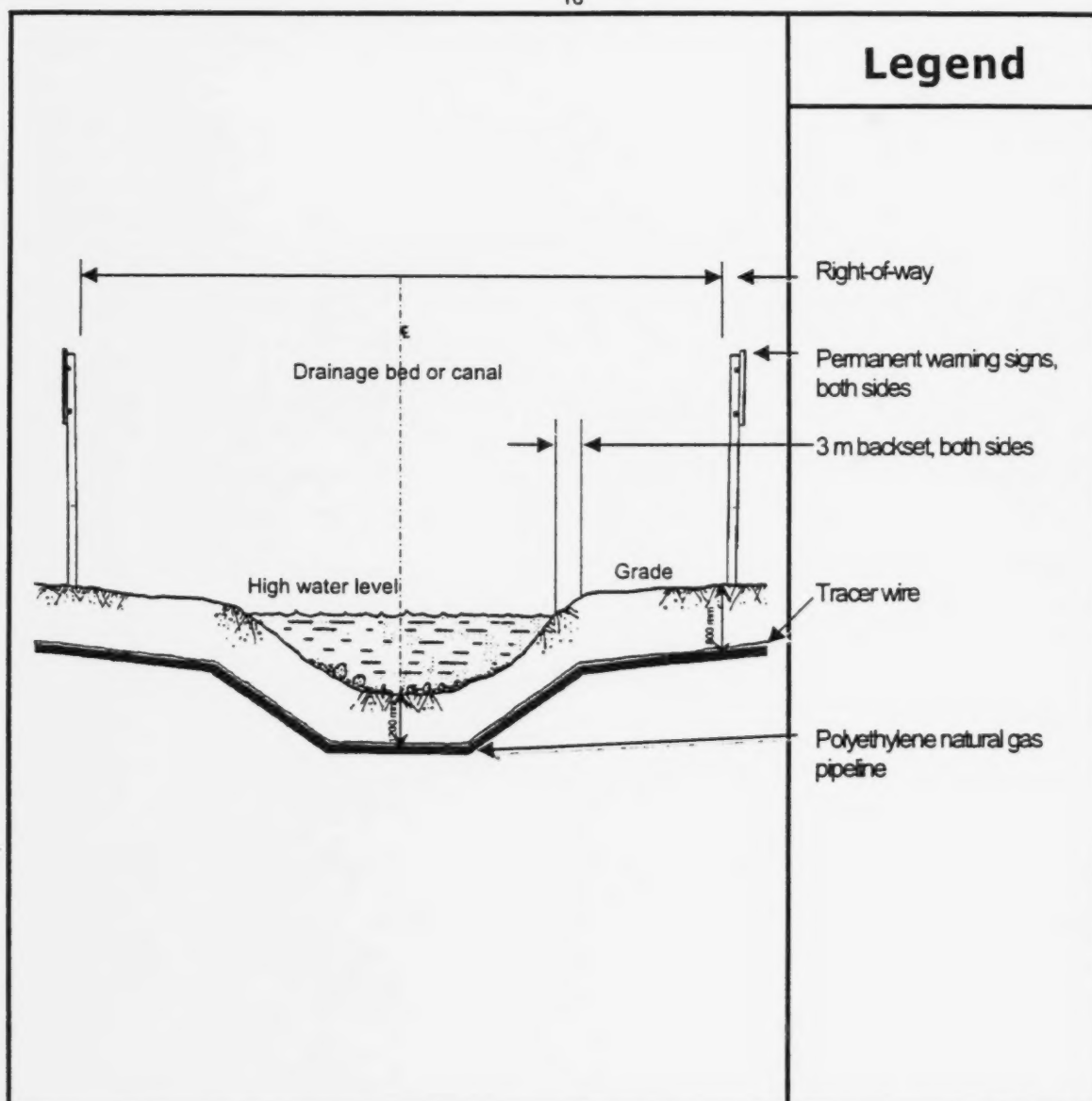


FIGURE 4.5 TYPICAL WATER/CANAL CROSSING

NOTES:

1. Minimum cover to be kept until 3 m backset of the high water mark.
2. Cover may depend on outcome of hydrological designs when requested by governing body.

Alberta
ENERGY
 Utilities Branch

June 2001

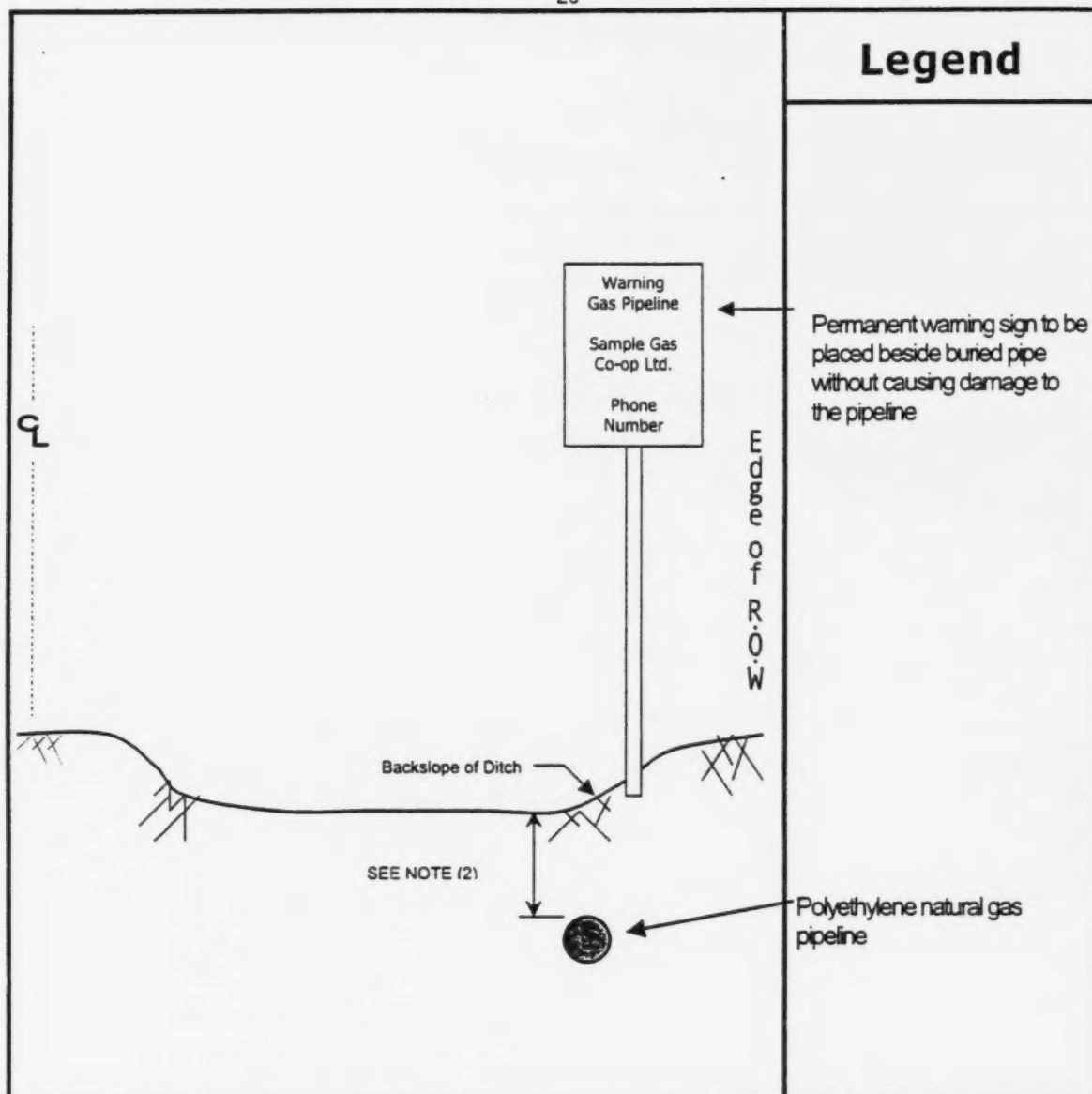


FIGURE 4.9 PIPE INSTALLATIONS IN RURAL ROAD/ HIGHWAY RIGHTS-OF-WAY

NOTES:

1. Maximum distance between warning signs shall be approximately 300 m.
2. Minimum depth of cover as outlined in Figure 4.3

Alberta
ENERGY
Utilities Branch

June 2001

FIGURE 4.3

Standard Dimensional Information for Highway or Road Crossings

ROAD TYPE	ROAD AUTHORITY	MINIMUM DEPTH OF COVER	STANDARD LOCATION OF HORIZONTAL OR VERTICAL BENDS
	Alberta Transportation	1400 mm	30 m from edge of right-of-way
2 lane primary highways	Alberta Transportation	1400 mm	30 m from edge of right-of-way
900 series secondary roads	Alberta Transportation	1400 mm	30 m from edge of right-of-way
Other secondary roads or park roads	Local municipal authority or Alberta Transportation	1100 mm	At edge of right-of-way
Local municipal roads, service roads or subdivision roads	Local municipal authority or Alberta Transportation	1100 mm	At edge of right-of-way
Private roads	As applicable	1100 mm	At edge of right-of-way

Note: Unless specifically approved by the road authority, no bends shall fall within the existing or proposed right-of-way, or within the setbacks listed above.

The location of horizontal bends relating to gas distribution pipelines paralleling road rights-of-way is covered in Section 4.8.



**New and
comprehensive
definition for
dangerous and
unsightly premises**

Part V

Section 5.9

Dangerous and Unsightly Premises

Municipal Government Act

The Municipal Government Act became effective on April 1st, 1999 and implemented a number of important changes to the way in which dangerous and unsightly premises are handled in the Province of Nova Scotia.

The MGA has defined the term "dangerous or unsightly" in a more comprehensive and detailed way than previous legislation. The term includes partially demolished, decayed, deteriorated or in a state of disrepair so as to be dangerous, unsightly or unhealthy. Included in the definition is a broad list of conditions that could cause a property to be determined as dangerous and unsightly or unhealthy, such as property containing:

- ashes, junk, other rubbish or refuse;
- derelict vehicle, vessel, or item of equipment or machinery, or bodies or parts of such items; and
- an accumulation of wood shavings, paper, sawdust, dry and inflammable grass or weeds or other combustible materials.

The definition includes property, a building or structure:

- that is in a ruinous or dilapidated condition;
- the condition of which seriously depreciates the value of land or buildings in the vicinity;
- that is in such a state of non-repair as to be no longer suitable for human habitation or business purposes;
- that is an allurements to children who may play there to their danger;
- that is unsightly in relation to neighbouring properties because

the exterior finish of the building or structure is not maintained;
or

- that is a fire hazard to itself or to surrounding lands or buildings; or
- that has been excavated or had fill placed on it in a manner that results in a hazard. [Section 3 (r)]

Derelict vehicles

According to the Municipal Government Act, a derelict vehicle, vessel, item of equipment or machinery that is left on a property, with or without lawful authority, and appears to the administrator or building officer to be disused or abandoned by reason of its age, appearance, mechanical condition, or, where required by law to be licensed or registered, by its lack of a licence plate or current registration.

Delegation of authority to an administrator or committee

Under the MGA, a municipal council has the option of delegating its authority under the dangerous and unsightly premises provisions, to an administrator, committee or community council. The administrator is a municipal employee or other person designated as such by the chief administrative officer, to be responsible for the dangerous and unsightly premises provisions of the MGA, and includes anyone acting under that person's supervision. [Section 3(a)]

If authority is delegated, an appeal lies to the council; council also may delegate its appeal powers to a committee. The one exception to this power to delegate to the administrator, is the authority to order demolition. [Section 345]

When a property is deemed to be dangerous or unsightly, the municipal council may order the owner to remedy the condition by removal, demolition or repair. The order must allow at least 30 days for compliance, unless the order declares the property to be dangerous, in which case it may specify a shorter period. [Section 348(3A)]

In cases where public safety may be an issue, the MGA allows the administrator to take immediate necessary action to prevent danger or to remove a dangerous structure or condition. [Section 350]

The order of the administrator or committee may be appealed to council within 7 days after it is made. [Section 346(2)]

Who is the owner?

In the MGA, the definition of the word owner includes: a part owner, joint owner, a tenant in common or a joint tenant of land or a building. [Section 3(ay)]

In the case of the absence or incapacity of the title holder, the definition includes: an executor, trustee or guardian, an agent, mortgagee having control or care of the land or building, and in the absence of proof of ownership, the person assessed for the property is considered as the owner. The MGA also includes in the definition of "owner" a person who occupies shores, beaches or shoals. In the past coastal properties or shores, although owned by the Province, have often been used by neighbors, therefore the definition of owner includes any person who occupies a shore. [Section 3(ay)(ii)(C)]

Demolition orders

In order for a municipality to order demolition of a building deemed to be unsightly, dangerous or unhealthy, certain conditions must be met.

- The owner must be given not less than seven days notice of the time, date and place of a meeting at which a demolition order shall be considered.
- The owner must be given an opportunity to appear and be heard before any demolition order can be made. (Notice of such a meeting may be served by being posted in a conspicuous place upon the property or it may be served personally upon the owner.) [Section 346]

Court procedures

A municipality may make application to a court for a declaration that a property is dangerous and unsightly, and for an order specifying that the condition be remedied by removal, repair or demolition. A court can make findings on these items and in addition, can order any property found to be dangerous and unsightly to be vacated until the condition is remedied. [Section 347]

This kind of court procedure has the advantage of permitting the municipality to determine in advance, what it can or cannot do, and can also deal with issues such as disposal of items removed from the property. The owner has the opportunity of attending the court session and having his or her side of the story heard. This option settles the legal issues before any work has been done, which would be an advantage particularly if significant expense is expected.

**The administrator
has the power to
enter land**

In a situation where an owner who has received an order from the administrator, committee, council or court, and has failed to comply with such an order, the administrator has the right to enter upon the property without warrant or other legal process, and carry out the work specified in the order. In addition, the administrator can order the occupants to be removed, using force if required, in order to effect the demolition or removal. However, except in an emergency, the administrator cannot enter any room or place being used as a dwelling house without the consent of the occupier unless the entry is made in daylight hours and upon written notice given to the occupier at least twenty-four hours beforehand. [Sections 348, 352]

In addition, the municipality may prosecute for failure to obey the order. This usually would be commenced by issuing a summary offence ticket. Each day during which the condition is not remedied is a separate offence. [Sections 348(4)(5)]

Collecting the money

The MGA provides for the recovery of any money expended by the municipality under a dangerous or unsightly premises order. Where a municipality lawfully causes work to be done under the Act, the cost of the work, along with interest owing, is considered a first lien on the property. Under the MGA, a lien is defined as a tax and therefore is recoverable by the municipality as taxes. [Sections 507; 133.3, 3(bz)]

Tax sale

As in other instances, the municipality has a number of options at their disposal to collect outstanding taxes:

- the treasurer may sue for and recover all taxes and other sums due to the municipality; or
- seize and detain goods for sale, or put the property up for tax sale if the amounts are not paid. [Sections 119; 120-124; 134]

**Immunity from legal
proceedings**

The municipality is afforded a significant amount of protection from legal action under the MGA. The Act provides that no action shall be maintained against a municipality or against the administrator or other employee of a municipality, for anything done under this part of the Municipal Government Act. [Section 353]

**Extraordinary
powers**

Part XV of the MGA vests a number of extraordinary powers in the administrator, the council, or in a standing committee or community council to whom council has delegated its authority. These extraordinary powers include:

- the right to make an order;
- the right to direct someone to take action with respect to their property that they may not wish to take;
- the right to enter on private property to carry out the terms of any Order;
- the right, *without warrant or other legal process* to carry out the work specified in the order;
- the right to *remove occupants*, whether they want to be removed or not;
- the right to order the immediate vacation of a property that is unsafe;
- the right to take immediate action when necessary to prevent danger even to the extent of the demolition of a structure; and
- the right to sell the land if the money owing on it for the work done is not paid.

Such extraordinary powers demand an extraordinary attention be paid to the exercise of such powers. The spirit of the statute must be observed and the statute must be followed to the letter. Careful record keeping must be maintained and each action must be judiciously documented. No activity should be undertaken unless and until it has been carefully documented.

The Process

There are distinct advantages for a municipality to set up a written process for dealing with dangerous and unsightly premises. The municipality as well as the public will have a clear idea of who is responsible for dealing with these situations and how these situations may be resolved.

In the event that the situation cannot be resolved, and the case must go to court, a clear and complete documentation process can demonstrate that a dangerous and unsightly situation existed and the municipality took reasonable steps to have the situation resolved. This can be an important factor in a successful legal action or prosecution. Each municipality should have standard operating procedures (SOP) in place

**Dangerous and
Unsightly Premises
Policy**

that officials must follow in investigating every complaint. A list of items that should be included in the SOP is outlined below.

The Municipal Government Act (MGA) provides municipalities latitude on who should deal with dangerous and unsightly premises, whether it be council, an appointed administrator or a selected standing committee. The Association of Municipal Administrator's Model Policy Manual provides a suggested policy for dealing with this matter.

Confidentiality?

The policy can also deal with whether the municipality wishes to maintain the confidentiality of the person lodging a complaint, or whether this information would be open to the public. The MGA (Part XX, Freedom of Information and Protection of Privacy, Section 475 and 480) does permit the municipality to maintain the confidentiality of the person lodging a complaint. In Nova Scotia, there are municipalities which provide confidentiality and others which maintain open files. There are pros and cons to both approaches, for example:

- | | | |
|----------------|-----|--|
| Confidential:- | pro | - people are willing to lodge a complaint without fear of reprisals |
| | con | - there may be an abuse of the system with frivolous complaints |
| Open: | pro | - people will not be wrongly accused of lodging the original complaint |
| | con | - once the complainant is known, this may create animosity between the two
-people may be less likely to lodge a complaint. |

**Councillor
participation**

The policy section will determine the main lines of authority in the municipality, as provided by the MGA. One issue worth considering is where and how the councillor becomes involved in the process. Should the councillor's involvement be limited to notification of a dangerous and unsightly premises complaint and then kept updated on the progress? Or, should the councillor become involved in the process, from filing complaints on behalf of their residents to the highest level of negotiations between the municipality and the company or citizen with whom a complaint has been lodged?

The advantages of councillor participation in this process is that the councillor should have a greater awareness of the norms and concerns

Standard Operating Procedures

of the neighbourhood. As a third party, the councillor may be able to mediate to find an acceptable resolution to the problem.

On the other hand, there is a variation amongst councillors with respect to their mediating skills, and willingness to become involved. The net result is a dangerous and unsightly premises process which may vary from area to area in the municipality. Finally, careful consideration should be given before involving a councillor in the process, as they may ultimately serve as the "jury" in a dangerous and unsightly premises dispute, especially in the case of demolition. Such a situation could cause potential problems for the municipality. This is one aspect the municipality and council will have to resolve.

Immediately upon receipt of a complaint, a file concerning the property in question should be opened. The information collected will vary from municipality to municipality, depending on the process they decide upon, however, these are some of the items which should be included:

- name, address and phone number of the complainant;
- name of owner, address and PID of the property;
- nature and particulars of the complaint;
- dates of: receipt of complaint; inspections; meetings with owners; council meetings; actions and if necessary court case;
- map of property;
- photographic evidence, either photos, video or electronic photographs;
- links to GIS system;
- links to Permit system;
- correspondence with owner or other relevant parties;
- copies of Notices posted on the property, and photographs of the actual posted notice.

It is essential that the municipality is able to point to appropriate compliance with the legislation, and indicate the reasonableness of all steps taken throughout the process. To this end, the municipal solicitor should be sought out to develop a set of forms to be used. These forms can then be used without the necessity of resorting to legal advice every time a property comes under scrutiny as a possible dangerous or unsightly premise. The appropriate staff should be familiar enough with the forms and comfortable in filling them out, that the process becomes a routine administrative procedure.

Dealing with dangerous and unsightly premises is never an easy matter. However, with established written procedures in place, clearly defined roles and well understood responsibilities, the process can be a fairly routine procedure.

Section 6.4

Transition to Single-Window Government (e-Government)

Forward

On October 16, 2001, Service Nova Scotia and Municipal Relations, the Union of Nova Scotia Municipalities and the Association of Municipal Administrators held a joint seminar on e-Government for municipal administrators and elected officials. This seminar sparked considerable interest with a number of the municipalities who wanted to venture further in the provision of e-Government services and participate in joint projects.

At the first meeting of the interested parties, it was decided to have a "how to manual" produced to provide guidance for all municipal units wishing to initiate or further develop their e-Government services. SNSMR contracted CGI to prepare this document because of their many years of direct experience working with government organizations around the world developing e-government systems.

SNSMR would also like to thank the following for their review, input and direction to CGI on completing this document:

Roy Brideau	Town of Wolfville
Deborah Campbell	Cape Breton Regional Municipality
Dennis Egyedy	Municipality of the District of Argyle
Ray Gallant	Town of Yarmouth
Lyle Goldberg	Town of Wolfville
Donna Truesdale	Town of New Glasgow
Don Smeltzer	Municipality of the District of Argyle
Janice Wentzel	Association of Municipal Administrators

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Section 6.4

Transition to Single-Window Government (e-Government)

Executive Summary

Local government readers who have already embarked upon service improvements in the delivery of their municipal services through traditional and electronic means and have adopted an approach and methodology may wish to validate their methodology by quickly reviewing this Executive Summary. Those who are considering a service improvement initiative may wish to pay closer attention to the units in this section and may wish to consider them as a guide or “road map” to service improvement work.

The Executive Summary will provide the reader who is more experienced in service improvement with a tool to quickly “scan” the contents to check practice against recommended methodology for electronic service delivery.

The methodology documented herein constitutes proven “best practices” used by public organizations in moving to single window service delivery. It recommends a “whole organization” approach focusing on the organization’s business strategy, the design and development of the organization, its people, business processes, systems and technology infrastructure. While some organizations have been able to make notable progress towards service improvement by adopting some, but not all, of the approaches recommended in this document, those that have been most successful have taken the enterprise-wide approach that the road map recommends, and by doing so have leveraged all the advantages that this holistic framework delivers.

Following is a summary of the road map to single window government.

Self Assessment Tool: Planning for Single Window Government

The move to single window government by a municipality will affect everything in that government: organizational design, technology, people, business processes, goals and objectives. Governments that have made significant changes in how they deliver services have discovered that the challenges lie in how well the change is planned and staged and the extent to which the organization is prepared to manage and lead change. An organizational self-assessment tool is offered to determine readiness for change. The tool deals with the current state of the following organizational elements:

- Leadership and planning
- Customer focus
- Staff focus
- Internal communications
- External communications
- Change management
- Organization structure
- Process focus
- IT Infrastructure
- Physical Infrastructure

Understanding these elements will help to establish the “call to action” and chart the way for service and organizational improvements.

Business Strategy

This unit lays out a cascading planning process for the organization, beginning with a corporate plan for moving to single window government (**the what**) cascading down through each municipal department’s plan to deliver on the objectives, through to each individual’s work plan (**the how**). Measurement of corporate performance against goals and objectives, the development of values and principles that frame and drive staff performance as well as the performance appraisal and management processes are included.

No different from most organizations, public service agencies must be concerned about the bottom line: the investments they make in people, and infrastructure (**inputs**), the service experience (**outputs**) and the quality of life (**outcomes**) for citizens. The road map recommends that the organization be clear on the services it should deliver and the channels (over-the-counter, electronic) through which it delivers them.

Organization

This unit deals with the restructuring and redesign of the organization as it moves to deliver services in a different way. Planned and focused communications to staff, stakeholders, media and customers is recommended to ensure clarity and understanding, encourage ownership and lay the foundation for organizational change.

People

Capturing the hearts, minds and creativity of staff is the key to moving an organization forward to embrace new ways of delivering services. This unit deals with one of the most difficult challenges, rivalling the challenges presented by business process reengineering or technology adoption: designing and managing the change management process. Included in this unit are approaches for skill and training needs analysis, skill profiling, customer consultation and obtaining staff input on ways to improve service.

Business Processes

In this unit, a fast track to electronic service delivery which uses an iterative/use/reuse/ process to develop Web services is described. As well, the section deals with approaches to packaging services according to "life events" and reengineering the process for delivering current services to make the delivery more efficient for citizens and for the organization.

Systems and Technology Infrastructure

Understanding the organization's current technological capability in order to plan for the future, updating technology, and using existing infrastructure in new ways are dealt with in this unit. Factors to be considered in portal development (look and feel, branding, navigation and structure of the site, information and service definition security and technology requirements) are all described in this portion of the manual.

In summary, this section presents a road map to assist municipalities to navigate through their electronic service improvement initiative. Although it is recommended that the road map be followed, it is not mandatory. Municipalities may, after self-assessment, chart a route that is most in keeping with their vision, culture and customer requirements. Notwithstanding the road map presented in this section, off-ramps are at the discretion of the municipality. However, a stepped, co-ordinated approach to the strategies presented here is highly recommended.

CGI's Experience

CGI's experience in the area of government service delivery, or what they have termed g-Commerce, has been at the forefront of the industry. Their experience has not only been in integrating traditional over-the-counter government service delivery with new electronic service delivery channels, but also in addressing the 'front office' and 'back office' functionality required across multiple departments – thus providing *single-window* access for the citizen regardless of channel chosen. SNSMR contracted CGI to prepare this document because of their many years of direct experience working with government organizations such as the Ontario and Alberta Governments, PWGSC, and Service New Brunswick, to facilitate change in delivery of services including electronic service delivery. As well, CGI and British Telecom have joined forces to service Local Authorities in the United Kingdom. There are very few companies (and governments) that have actually rolled out a working one-window delivery system. CGI has been part of the most fully integrated one-window delivery initiative in Canada and perhaps the world.

Introduction

This document provides guidelines for municipalities to assist in planning the transition to electronic service delivery.

The keen interest of governments around the world to move services to electronic doors suggest that it is in the interest of the public, elected representatives, staff and management to deliver services online. Among the benefits are:

- ☐ Increase in customer satisfaction and better service integration
- ☐ Increase in service satisfaction by developing a single portal providing a range of packaged and single services in ways that make sense to customers
- ☐ Branding a jurisdiction as a model user and bringing its citizens into the digital world
- ☐ Putting the jurisdiction ahead of its class, and so increasing its competitive position for attracting trade and investment
- ☐ Public perception that good government manifests itself in a concern for and action on service delivery improvements, customer choice and convenience

In the municipal context, e-Government matters from two perspectives:

People/Customers and Government /Councilors.

People/Customers:

- ☐ Citizens want services to be more accessible: at times and places (weekends and evenings) convenient to them
- ☐ The service experience is expected to be more responsive: knowing where to start, who to see, getting action on their request
- ☐ Citizens want service to be delivered in a way that saves them time

Key Concepts:

e-Government will transform the relationship between citizens and municipal representatives.

Notes:

Key Concepts:

Culture change will impact customer, people, structure, roles and responsibilities.

Notes:**Government/Councilors:**

- ❑ Moving to e-Government has the potential to transform and improve the relationship between citizens and their municipal representatives and staff
- ❑ e-Government services can increase customer participation in municipal activities, provide better and more information to customers, make transactions more efficient and make it easier for citizens to access services
- ❑ The move to e-Government enables municipalities to raise their delivery methods to the level that citizens have come to expect by virtue of their dealings with the private sector

The transition to e-Government will have its most profound effect upon the organization and on the people who normally interface with citizens.

Knowing what underpins the success of the transition is important to achieving success. The underpinnings of the transition are fundamentally as follows:

- ❑ Capacity to manage the change process in the municipality
- ❑ Redesigned business processes

Service improvement initiatives fail when planning, staff, customer and organizational issues that underpin service delivery are not considered. Improvement initiatives also fail when poorly delivered services that are not user-friendly are automated. In this case, "physical run around" for the customer may be replaced with "electronic run around" and there may be no appreciable improvement in customer satisfaction.

If local governments are to improve services and generate cost savings, a wholistic approach is required that manages the cultural aspects of the organization, and analyses, assesses and redesigns business processes and

technology where warranted.

Getting started: Framework

The goal of a single-window initiative is to create an environment whereby every citizen is provided a convenient method to access government and its services through a single point of contact.

The implications for citizens are that:

- ❑ all services, irrespective of the department or division, will be accessible through this single point of contact
- ❑ services may be available through multiple channels (face-to-face, telephone, Internet, etc.), and moreover all channels will provide an equal and common response.

The implications for government are:

- ❑ that all departments and divisions will be prepared and equipped to support a common citizen (customer) interface
- ❑ that government will be able to maximize opportunities for the re-use of both data and business process steps and realize savings in deploying, managing and operating a citizen-centred service system

Making the transition to single window government will entail:

- ❑ changing the working “culture” of the organization into a full, service-oriented government, where the emphasis and the focus are upon providing improved services to citizens across all possible channels for their convenience. This has an impact on

Key Concepts:

“Reach” visible Internet presence but with no cross-departmental integration: a beginning but remains a “service island”.

Notes:

Key Concepts:

“Richness”:
integrated services,
intuitive services,
simple, easy for
customers to get the
services they want.

Notes:

- planning, people (customers, staff and other stakeholders), organization structure, and roles and responsibilities.
- improving access to services via the institution of a Web-enabled facility. Here the emphasis is generally on Internet access, but it may equally be deployed to the Intranet to improve access to information and to decision support systems, and to improve reporting and other functions within the internal government environment. Web enabling will, by definition and necessity, have an effect upon the organizations and people who normally interface with citizens and/or provide these ‘Web-enabled’ services. To that end, change must be anticipated and managed.

E-Government: “Fad” or commitment to better service?

The move to e-Government can constitute participation in a “fad”, or it can result in the achievement of dramatically improved service. Too often organizations focus only on business processes and technology as they consider enhancements to better address the needs of customers. Leaders often see technology and technological innovation as the essence of transformation itself instead of seeing them as “key enablers” that support the people, organizational and process changes.

Organizations that fall into this trap never fully realize the potential benefits of their efforts. By focusing only upon business processes and technology, they achieve “reach” which is a degree of visible electronic (Internet) presence in the delivery of services and processes within service ‘silos’. Typical of these organizations are:

- ☐ Web sites with little interactive capability
- ☐ "Sneaker ware" Call centers in the mid and back-offices
- ☐ Service centres that provide services in silos: no integration with other services to create service packages

Notes:

The organizational changes that would permit and enhance integrated service delivery are not made. The promise of "richness" – defined as the architectural foundation and framework for improving both business processes and service delivery—can only be achieved through:

- ☐ full enlistment of customers, staff and other stakeholders in the process
- ☐ development of customer-focused service packaging, and
- ☐ deployment of technologies that support both vertical and horizontal integration; such as:
 - Enterprise Resource Planning,
 - Customer Relations Management systems,
 - Computer: Telephony integration etc.

Where "reach" only is achieved, citizens will never experience the potential benefits of the investment being made to improve business processes and improve the cultural environment so that continual process improvement become a "way-of-life" for the organization

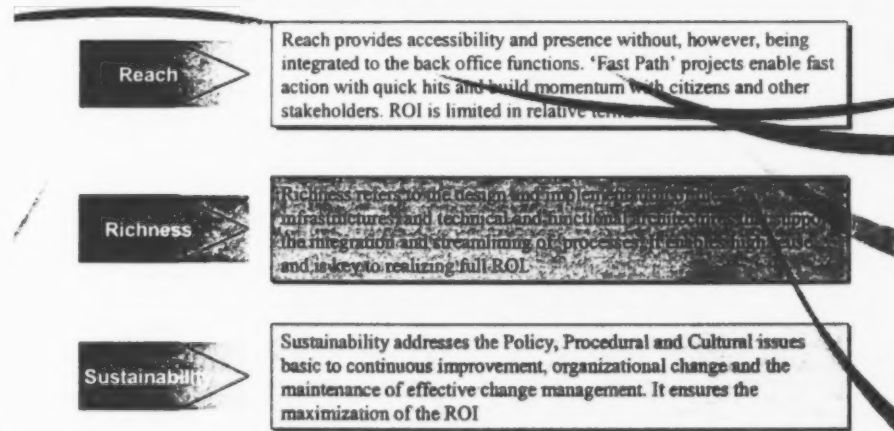
Framework

A framework that encompasses "Reach, Richness and Sustainability" ensures that changes result in long term "transformation" of the organization, that changes are "sustained" through ensuing administrations and that the organization is prepared to address the challenges of the future. Below is the "reach, richness, sustainability" framework.

Notes:

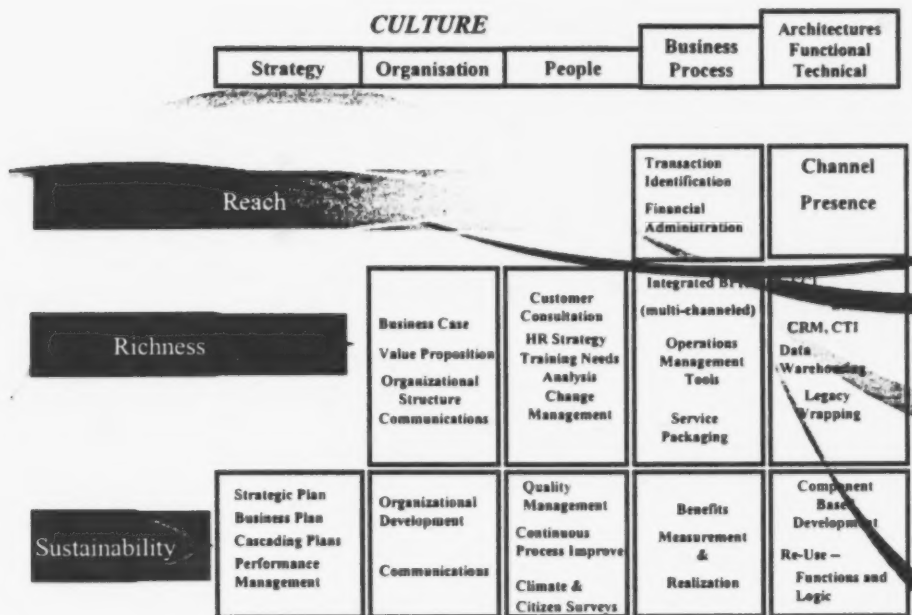
Single-Window e-Government

Framework for Single-Window Government



Many organizations move from reach to sustainability in relatively short order while others become "stuck" in providing a wide range of services (reach) with no integration behind the "pretty" face. "Reach" provides only limited return on investment (ROI), while "Reach, Richness and Sustainability" taken together ensures maximum return on investment.

Maturation Model Reach – Richness – Sustainability the path to continuous improvement



Key Concepts:

“Reach, Richness and Sustainability”: accessibility, presence, streamlining, continuous improvement.

Notes:

Transformation to Single-Window Government

The Maturation Model illustrates clearly that a service improvement effort that sets only “reach” as its objective, does not consider strategy, people or organization. However, to achieve “richness” and “sustainability” organizations must be prepared to work with the cultural aspects of the organization to achieve full and lasting transformation.

Readers of this manual may have already initiated various actions associated with the reach, richness and sustainability strategies identified in the model above. Determining where you are on the “readiness for change” continuum is important for elected representatives, staff and management when contemplating a major service transformation project.

Notes:

In order to assist municipalities contemplating such change, an organization assessment tool is appended to this section. The tool measures the municipality's *status quo* on:

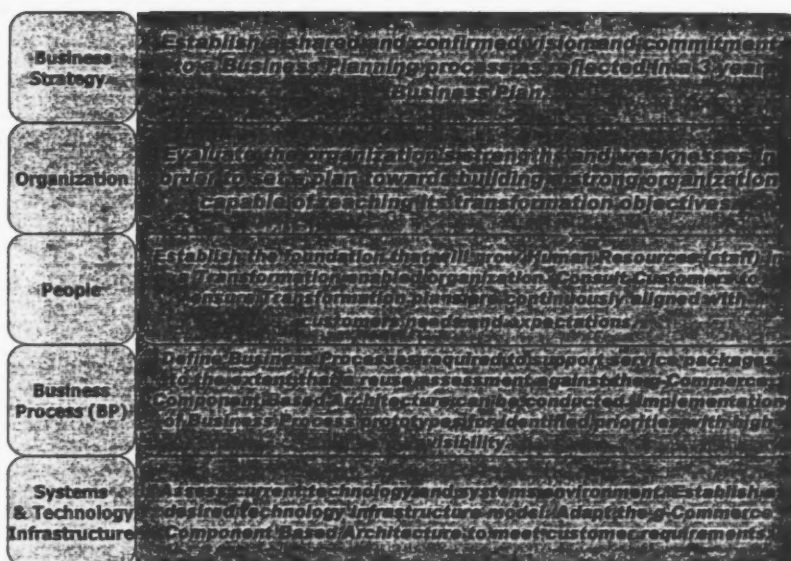
- | | |
|--|--|
| ☐ Leadership and planning | ☐ External Communications |
| ☐ Customer Focus | ☐ Quality Focus |
| ☐ Staff Focus | ☐ Change Management |
| ☐ Internal Communications | ☐ Organization Structure |
| | ☐ Process Focus |
| | ☐ Physical Infrastructure |
| | ☐ IT Infrastructure |

The tool can be used where a municipality has decided to make the transition to e-Government and wishes as a next step in launching the initiative, to collect the views of councillors, staff and management on readiness for change. It can also be used as an educational tool to alert municipalities who are contemplating a transformation to the elements that will come into play in managing the transformation.

Road Map to Single Window Government

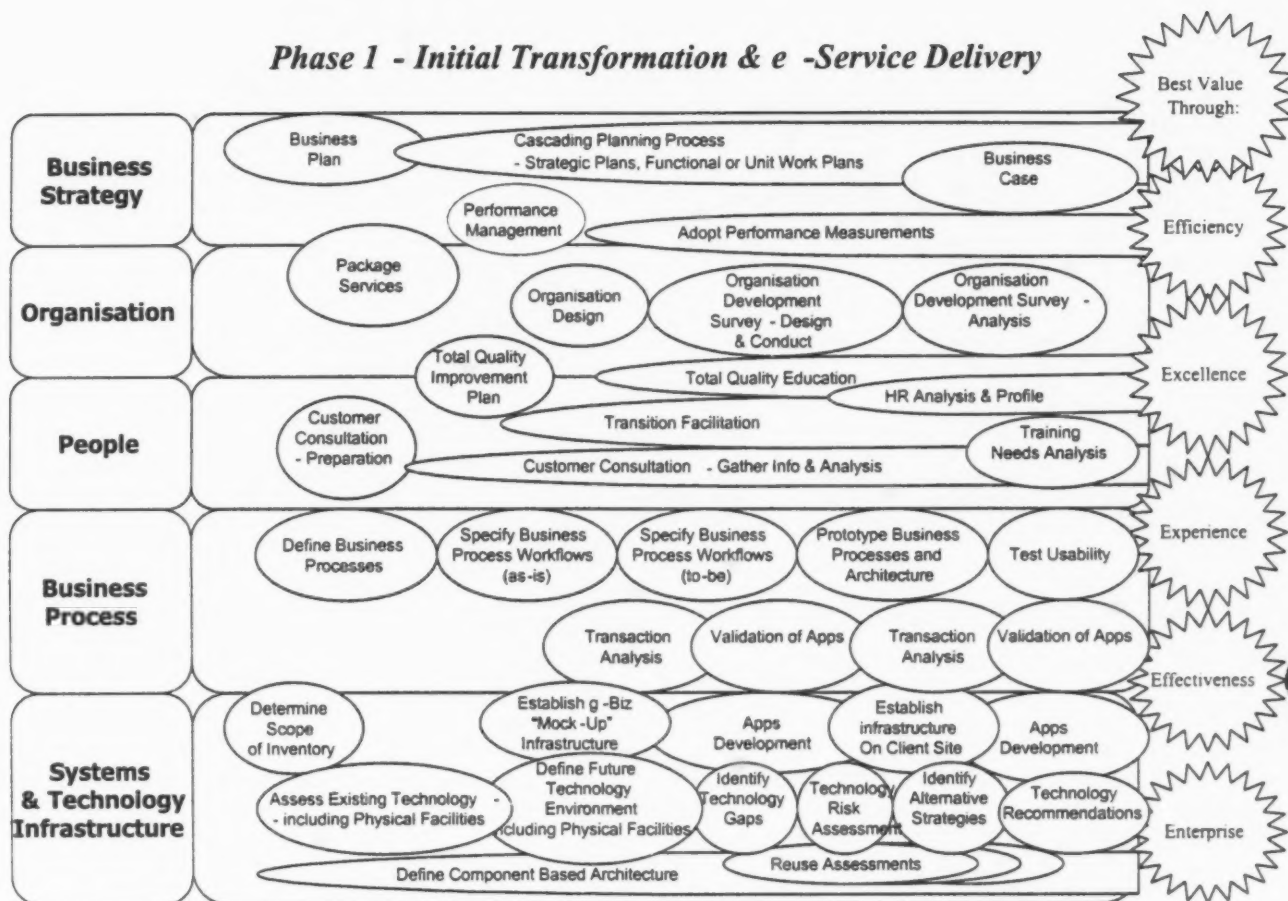
The following diagrams outline an approach or road map as a guide for any organization wanting to prepare for a move to single-window, E-Government. Many municipalities will, no doubt, already be immersed in some of the steps of the 'Road Map'. Others may find they lack the resources to embark on some of these initiatives or may not like aspects of the approach. Undertaking any of these initiatives will help move the yardstick for the municipality closer to a comprehensive transition to single-window.

There are five critical components of the approach: Business Strategy, Organization, People (customers, staff and other stakeholders), Business Process and System and Technology Infrastructure.

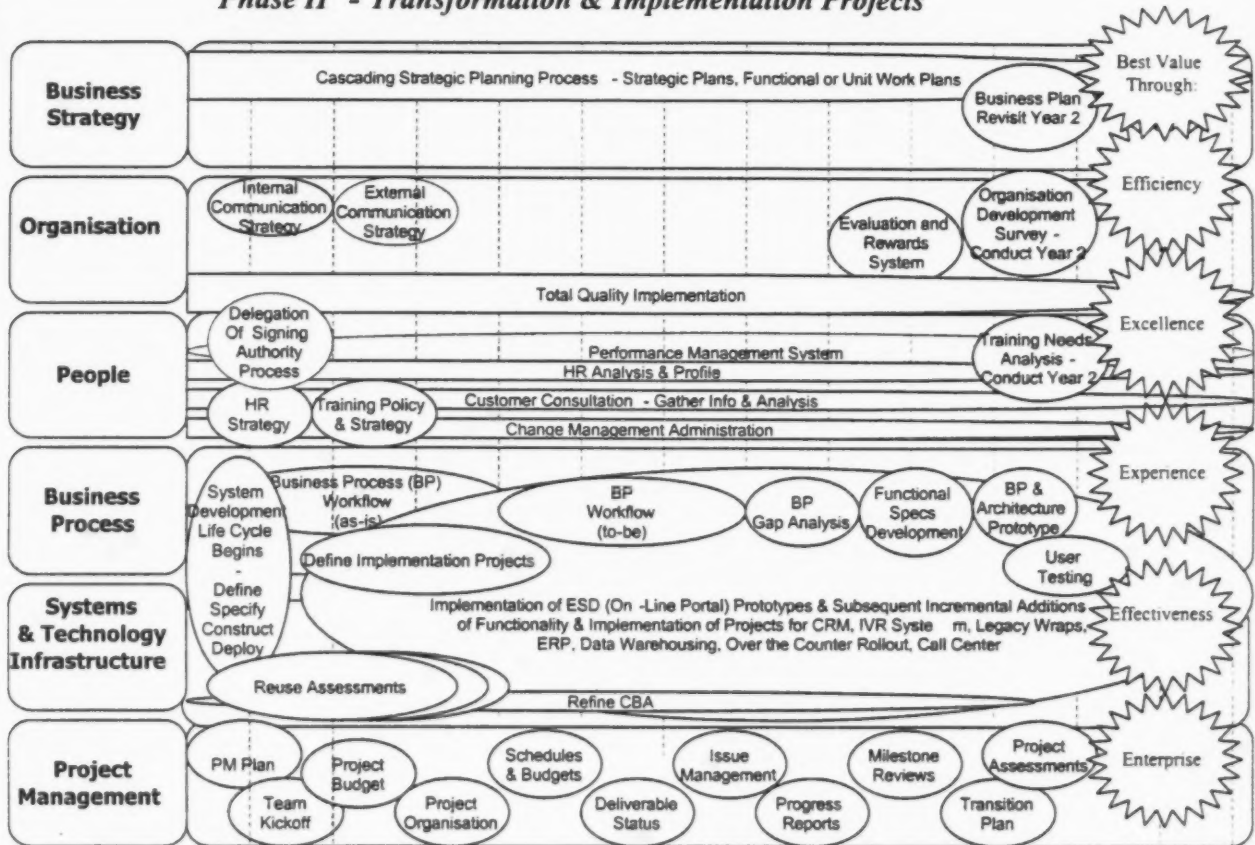


These five components are divided into a number of modules and activities as depicted in Phase I and Phase II in the following diagrams and are discussed in greater detail in this section.

Phase 1 - Initial Transformation & e -Service Delivery



Phase II - Transformation & Implementation Projects

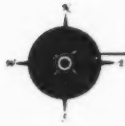


Underlying Functional and Technical Infrastructure

The following schematic attempts, at a very rudimentary level, to outline the functional and technical issues a service delivery organization such as a municipality needs to consider in providing the necessary enablers to support the transition to E-Government. This is true irrespective of whether the channel for dialogue with the citizen is physical (an Over-the-Counter office), or whether it is an electronic form of interface (WEB, Call Centre, Interactive Voice response, etc.)

The function and the purpose

The tools used



NAVIGATION



SERVICING / SELLING

Enabling the user to actually select the service and proceed to the point where it can be acquired conveniently.



PAYMENT

Enabling the citizen to make the payment (where required) in the most appropriate and convenient manner.



FULFILLMENT

Facilitating the steps whereby the service request may actually be fulfilled by either the service unit itself, or by other agents where that is necessary.



POSTING

The types of tools (systems and software) that will be used both by the Service entity as well as the fulfilment department to link and integrate to other government systems.



REPORTING

The types of tools used to provide information, both operational and managerial, to the various stakeholder departments, as well as to the Service delivery unit itself.

Signage
Portals
Search Tools
Agent Assist
IVR Menu

Catalog
Pay Per View
Digital File
Publishing
Partial Paym't
Calendar

Credit Card
Debit Card
Cash
EFT
On-Account

OTC
Canada Post
Outsource
SMPT
XML Stream
ODBC

Oracle
Tuxedo
CICS
TIP

IM
MIS / EIS
Statements

These issues are dealt with again in the Business Process section of this manual.

A More Detailed Road Map

The following section provides greater detail of the rationale and means of implementing the components identified in the Road Map.

A. Business Strategy

A. 1 Strategic Planning

Section 6.1 of this manual provides municipalities with a very thorough guide to conducting a strategic planning process. It provides a model that is clear and simple to use. Worksheets are also provided to facilitate planning workshops. Readers are referred to Section 6.1 for a thorough guide to the process.

However, governments that wish to move to e-Government delivery must be prepared to integrate the e-Government vision with the regular strategic planning process. Accordingly, it is recommended that the municipality focus on the transition to single window government as it moves through the strategic planning process.

A vision statement, outlining the view the Strategic Planning Team has of the organization 3-5 years out at 100,000 feet needs to be developed to give context to the planning process. Transition to single window government and the electronic service delivery initiatives that are part of this process must be reflected within the vision for the organization to ensure consistency of purpose among stakeholders and the elimination of conflicting and competing goals and objectives.

The vision should be lofty, with stretch targets, but not unattainable. **Tip:** developing a 'contextual' statement to guide the strategic planning process will be more focused if the 'Service Model' and 'Business Case/Business Model' are completed first.

Key Concepts:

Integrate the e-Government vision with the regular strategic planning process.

Notes:

Key Concepts:

Integrating the e-Government vision with the regular planning process provides consistency of purpose.

Notes:

A. 2 Cascaded Planning

This process drives the vision, strategic direction (goals and objectives) and performance indicators – down to the level of the front line employee.

The Council and executives envision the possible future, they develop and articulate a vision for the future for the betterment of citizens, and they decide, with input from key stakeholders, **what** needs to be done.

Management transcribes that vision into strategic plans that cascade down through the organization to the business unit level -they figure out **how to do it**.

Every employee in the municipality should see themselves in the mission, vision and strategic plans. If they don't, implementation will be slow and the road will be bumpy. Front line staff must be involved in determining **who**, **when**, and **measurement** of achievement in order to be able to report on achievement of objectives. Much of this process is about effective communication and involves intensive, backbreaking, single-minded driving of the process throughout the organization.

A. 3 Business Plan / Business Case

The Business Planning process will move the Executive (and assigned staff) of the local government through the process of defining, describing and analyzing the existing service delivery infrastructure and help them to determine the desired approach for the future as well as the 'GAP' that exists between the present and future.

Current operating costs, development costs, and future service delivery costs are estimated and various funding scenarios are developed for consideration. This effort is essential if the transition to single window government is to be adequately resourced.

Suggested area for review of funding alternatives include:

- ❑ Analysis of the Human Resource Strategy to determine whether staffing/succession /downsizing plans are going to result in any net savings under the wage bill through attrition and when those are likely to occur
- ❑ Potential savings through rationalization of the physical infrastructure
- ❑ Savings through re-engineering of work processes should amount to a 'minimum' of 25%, (providing that there is sufficient volume in operation to enable the pursuit of economies of scale)
- ❑ Funding available through federal or provincial infrastructure modernization programs
- ❑ Implementation of an 'across-the-board' budget reduction program to line departments
- ❑ Surplus funds on hand that can be earmarked for the transition process.

Key Concepts:

Business Planning: essential to understanding where you are and where you're going.

Notes:

Key Concepts:

Savings from use of less costly channels will emerge eventually – but not within first 2 – 3 years of business case.

An e-Government municipality will be measuring different things than it did before.

Notes:

- ❑ Savings from the reduction of any services pursuant to application of the 'Service Model' process.

It is recommended that you do not count on savings from customers using less costly service channels. The reason is that the physical infrastructure must be maintained in parallel to new electronic channels. Experience has taught that the migration of customers to less costly channels is evolutionary. The savings will, of course, materialize ultimately. However, expecting savings in a 2-3 year business case is realistic.

Costs to be used in the business case formulation can be based on industry standards adjusted for local needs and anomalies. It is wise to be conservative by building sufficient contingency costs into each development scenario.

Depending on the magnitude of the transition effort, consideration may be given to development of a 5-year business case because benefits realization will increase in time commensurate with the magnitude of change.

A. 4 Performance Measurement And Management

As the transition to single window progresses, monitoring and measurement of results will be impacted in two ways. Firstly, what is to be measured will change.

You will want to measure service volumes by channel, progress toward ESD targets, customer reactions. Secondly, the means available for measurement will improve significantly, enabling enhanced decision-support and executive information.

Integrating the measurement and management system with the Strategic and Cascaded Plans will bring about a comprehensive approach toward planning and measuring the transition to e-Government.

Notes:

Step 1: Establishing Success Indicators

As goals and objectives are established to address Key Result Areas, additional factors must be considered and determined:

- ☐ What is the target date for accomplishment?
- ☐ How will we know when we get there?
- ☐ What measurement are we going to use to determine our progress?
- ☐ Are the systems in place to capture and report the chosen measurements?

In considering each goal and objective, think about:

- ☐ Financial Criteria - What is the targeted savings or revenue generation?
- ☐ Customer Measures – How and by how much do we expect achievement of the goal to impact customers?
- ☐ Internal Processes – What business processes will be impacted and how?
- ☐ Learning and Growth – What result are we expecting in terms of staff learning and growth of the organization?

Key Concepts:

Business Plan



Strategic Plans



Tactical Plans



Individual Work
Plans

Notes:**Step 2: Rolling out the Business Plan**

The corporate Business Plan, once reviewed and vetted by management and staff, is adopted as the approved "road map" for the organization for the established period (i.e. 3-5 years).

This Plan will be used:

- ❑ By members of the Executive as a guide for carrying out essentially the same planning process within their area(s) of responsibility to derive strategic plans.
- ❑ By managers within their departments/units of activity to develop tactical plans with their staff for their business units.
- ❑ By staff as a guideline to complete their individual work plans.

At each successive level in the planning process, managers and staff will articulate goals and objectives that identify responsibilities that contribute to achievement of the Business Plan. Each successive level also identifies how performance of their unit will be measured.

Step 3: Reviewing Performance Measures

The development of a Performance Measurement System is iterative. This means that measurements at successive levels within the organization are repeated and revisited regularly. The first major review of Performance Measurements created as a part of the Business Plan, will be completed following strategic planning within the divisions/departments/units then again following unit work planning.

The reason for this is that resource requirements, timelines and measures tend to be salted with certain realities as the process cascades closer to the point where plans become reality – i.e. at the front line. The goals, objectives, timelines and measures of success should be revisited following each of these implementation phases. In addition, in a similar manner to the performance review process at the individual level, the business and strategic plans also should be subjected to a regular review schedule. Hence, the entire process should be viewed as dynamic, not static.

Step 4: Validating the Business Plan

The performance measures and actual performance of the municipality are best validated by comparison with other municipalities recognized as practitioners of 'best practices'. This process is termed 'benchmarking'.

Through a rigorous program of comparing the performance targets and achievements with those recognized as being outstanding performers, the municipality can assess whether they are on the 'right track' and how they are progressing.

The other essential comparison is 'year over year' comparisons within the local government.

Key Concepts:

Business Plan



Strategic Plans



Tactical Plans



Individual Work Plans



= Measuring and Reporting on Performance.

"Benchmark" to determine how well you are doing.

Notes:

Key Concepts:

Take a long view:
plan, measure,
follow-up.

Regular teams
reviews cascaded up
to measure
achievement of
Business Plan goals

At the earliest
opportunity,
determine how
results will be
measured.

Notes:

All of the needed improvements within a municipality are not going to be accomplished within a single fiscal period or two. However, by planning, prioritizing, executing priorities, measurement and follow-up, major gains will be made over time.

Step 5: Measuring

Teams should review the work plans of individual members on a rotational basis so that every individual on the team receives a minimum of 3 work plan reviews per year.

The team should also review their unit or functional work plan 3 times per year. The work plan of the team is, de facto, the work plan of the team leader or manager. Managers should carry out follow-up reviews with superiors following each teamwork plan review. Reviews should be clearly minuted, dated and signed off. The purpose is to ensure that management at all levels is aware of the status of progress on established goals and objectives and agrees on any necessary adjustments to plans and measurements.

To the extent possible, the reporting of performance on goals and objectives should cascade upward through successive levels of management, culminating in measures of Business Plan goals and objectives, based upon established criteria.

During the Business Plan workshop, managers should consider which goals and objectives have performance indicators that can readily be measured through existing systems, (e.g. cost reduction for a business unit measured through the existing financial information system). Consideration should also be given to those performance measurements that can be addressed through the performance review process versus those that require system development to establish measurements that cascade up.

A. 5 Values & Principles

Section 6, Part III, Step 2, 2.2 refers to agreement on "municipal values". This is a critical component of the road map to e-Government in that a common set of values and principles within the organization provides a framework for decision-making and assists in definition of the context for organizational success. Periods of rapid and extensive change are often manifested in stresses and strains for management and staff as the need arises for rapid 'course alteration'. Values and principles that are accepted and practiced widely across the organization will serve as a rudder to steady the course during this potentially tumultuous period and thereafter.

It is helpful for an organization to announce what it values so that those who come in contact with it, as well as its own staff, understand the basis for its actions. If the organization does not establish and communicate its values, people are left to 'infer' them from organizational actions.

Shared values bind the members of a group together and provide a common path for individual and group efforts. Values jointly shared provide a framework for decision-making, and define the road to personal and organizational success.

In implementing shared values, extensive consultation with staff and other stakeholders is undertaken. To the extent possible, there should be unanimity among stakeholders in regard to the final set of values adopted: they are that important. The critical success factor to effective implementation is the commitment of leaders. Once developed, it is not possible to overdo communication of the organization's values. The process is somewhat time consuming but pays major dividends in terms of service to the customer, and commitment to the process by staff.

Key Concepts:

Values and principles: the "rudder" to steady the course.

Notes:

Key Concepts:

Staff and customer involvement in developing value statements pay big dividends in customer support and staff commitment.

Notes:**A. 6 Service Model**

Most government organizations have increased service offerings over time far beyond legislated requirements and in some instances far beyond the needs and desires of constituents. Service modeling assists councilors and the executive to challenge service offerings and ensure that resources and efforts are channeled towards well thought out e-Government initiatives. A rationalization process will result in identification on a service-by-service basis of what in their collective opinion the municipality should deliver, what should be managed (i.e. outsourced), and what the municipality should stop delivering.

To the extent possible, information on cost, associated revenues and history/rationale for each program will be necessary for this review.

Step 1: Key Questions

Focus the review on the following key questions:

- ☐ Why is the service offered?
- ☐ Who is the competition?
- ☐ What is the competitive advantage of the authority?
- ☐ How sustainable is that competitive advantage?

Step 2: Make Decisions

Make decisions on:

- ☐ What to drop?
- ☐ What to manage (i.e. outsource)?
- ☐ What to deliver?

A. 7 Channel Strategy

Citizens will want to use several different service channels depending on whether they like self-serve or over-the-counter service. Business rules for a service may make it impossible to deliver a service on many different channels.

Through the development of a formalized service channel strategy, customer attributes and service attributes are compared and evaluated, and services developed for delivery on the channel that "fits".

Channel Options

Single window service delivery channels include:

- ☐ Walk-in centres
- ☐ Mail
- ☐ Call centres
- ☐ Interactive Voice Response systems
- ☐ Screen Phones
- ☐ Internet, including digital television

Ask Questions

A number of questions may be asked:

- ☐ What channel does the customer prefer for a given transaction or a set of transactions in a service package? What is the second choice?
- ☐ Why does the customer prefer this channel?
- ☐ Is the choice of channel time sensitive? (e.g. Would the choice of Web or call centre change if a walk-in centre were open during the same hours?)

Key Concepts:

Ask the hard questions about your current service: why, who what, how.

Customers have certain characteristics and so do service channels: what is the "fit"?

Notes:

Key Concepts:

All services do not fit all channels: understanding characteristics of channels, services and customers is the key.

Notes:

- ☐ Is the desired service or package of services available using the preferred channel?
- ☐ What barriers exist for the organization to make the service available on the preferred channel?
- ☐ What barriers exist for the customer to access the service on the preferred channel?
- ☐ What are the customer's priorities for improvement?
- ☐ If there is more than one contact required to complete/fulfill a service, what channels are involved?
- ☐ Is there simplicity and is it seamless as the customer moves from channel to channel and window to window?
- ☐ What are the obstacles if a customer steps outside the window they are currently in?

Issues, Challenges and Barriers that stand in the way of the "fit"

Organizational silos	Multiple entry points
Confidentiality restrictions	Navigation
Identification	Authorizations
Fulfillment	System integration

Legacy operating restrictions (e.g. business hours, maintenance time, batch update routines etc.)

The Service Channel Puzzle:

Theoretically, any service can be delivered over any channel. However, it is apparent that not "all" services can or should be delivered over "all" channels in the short term. Therefore, a means for prioritization is needed.

Notes:

The economics (i.e. cost of development, productivity and efficiencies derived, cost of service) are also consistent across all channels for all services. The attributes among customers are also not sufficiently homogeneous to warrant a "one size fits all approach". In addition, the business rules for some services may render the development of multiple-channel offerings difficult, if not impossible.

Willingness to review and alter business rules will either enhance or impede the development and implementation of new channels for some services. What is needed is a process that compares and evaluates customer, channel and service attributes and prioritizes services for channel development based on customer preferences and economics.

Lessons learned and *course corrections* in a physical, over-the counter (OTC) service delivery model will assist the municipality to learn the nature of customers, what constitutes good and poor customer service, and understand issues around business rules. Understanding this will result in maximization of benefits when e-channels are developed.

For a more comprehensive discussion of the components of the service channel puzzle, readers are referred to the Appendix attached to this section.

B. Organization

B.1 Organizational Structure & Design

Transition to single window, e-Government will create changes in the way work is completed within the organization, and changes in accountabilities for service delivery and reporting relationships. Consequently, some re-organization within the municipality will be required.

Organization design is a powerful tool available to leaders to signal change. Restructuring of the organization as well as the service delivery infrastructure can serve notice to the public, staff and other key stakeholders that a major change is underway. Since reorganization is such a powerful tool, it is not one to be used frequently or haphazardly.

Rarely will a single organizational design accommodate a large, multi-purposed, multi-faceted organization such as a local Government, with the wide range of responsibility for service delivery. There is no such thing as "one size fits all" in organizational design. Structural alignment decisions need to be based on a clear understanding of:

- ☐ the internal and external environment in which the organization operates
- ☐ mission of the organization
- ☐ strategic direction toward single window and e-Government as established for the organization and the resulting vision that the organization is trying to achieve
- ☐ services the organization provides
- ☐ profile of customers to whom services are to be delivered
- ☐ the channel strategy that the organization has adopted

Key Concepts:

Re-organize with care: Make the new design reflect the vision and direction of your government

Notes:

Notes:

B. 2 Communications – External

In determining an approach to external communications the following should be considered:

- Creating “Brand” Recognition
- Managing the media
- Developing a manual for staff to communicate key messages to customers for specific lines of business
- Facilitating associated training
- Link external communications to ‘marketing’ of:
 - New delivery channels (particularly e-doors)
 - New products and services
 - New organization (e.g. delivery infrastructure)

The municipality will need to blend content and delivery of the communications program to address the environment and needs. The following provides a ‘thumb nail sketch’ of the process to achieve this program:

- review the current communications strategy and approach
- define necessity, format and technique for the new Service Delivery ‘BRAND’
- define the customer and determine how to reach him/her
- develop a communications action plan where appropriate
- discuss and elicit approval from Council as required
- activate steps in plan and ensure that adequate resources are in place to follow through.

If done effectively, the municipality will derive a clear brand or differentiator that members of its electorate readily identify with, a strategic approach to media management, and a staff which functions as a delivery mechanism for municipal messages to the public.

The benefits of doing this are:

- ☐ clarity in the brand that differentiates the municipality from other municipalities
- ☐ public recognition and identification with the municipality and its councilors
- ☐ a strategic approach to media management
- ☐ consistency in messages delivered by councillors, and staff

B. 3 Communications – Internal

The informal communication grapevine in an organization rarely supports the change underway. This is particularly true in the face of major transition described here. The organization will therefore develop tactical plans for delivery of an effective internal communications program to ensure that:

- ☐ Successive levels of management and staff receive a consistent and accurate message
- ☐ Management and staff are delivering the correct message(s) to unions and other stakeholders in context with the purpose, objectives, work plans and activities of the e-Government initiatives
- ☐ The free flow of information underlines the pre-eminence of and is consistent with a customer-focused organizational culture.

Staff members, unions, and other stakeholders must all be brought on side with the purpose, objectives, work plans and activities of the transition project(s). A

Key Concepts:

A very senior person becomes spokesperson and keeps all stakeholders informed of progress on a regular basis.

Notes:

Notes:

champion/leader who is credible and has earned the trust of staff is an essential player in the change initiative: this person will deliver updates and key messages to those involved in the change program.

The foci in terms of internal communications include:

- ☐ Promoting the "BRAND" (of Service delivery)
- ☐ Key messages delivered consistently by the leader
- ☐ Establishment of discipline in the internal communications regime
- ☐ Managing the internal "news" network – including the rumour mill

Communications is the most important and time-consuming function in management. If pursued tactically and with discipline, the result will be an improved level of understanding and commitment among staff, improvement in management/staff dialogue, and a clear demonstration of change taking place in the working environment.

C. People

C. 1 Change Management

The most important and difficult element in moving an organization to a radically different environment is the transition required of managers and staff. Leaving the past behind brings with it a host of challenges and opportunities for leaders.

William Bridges from the book Managing Transitions points out that:

.... "It isn't the changes that do you in, it's the transitions. Change is not the same as transition. Change is situational: the new boss, the new site, the new team roles, the new policy. Transition is the psychological process people go through to come to terms with the new situation. Change is external. Transition is internal."

As municipalities go through dramatic changes, problems tend to be multiplied as new systems and processes necessitate greater effort.

Change Management is *the management of interventions* and is intended to ensure that members of the organization effectively leave the past behind. Leaders will be required to anticipate the impact of endings and losses that are certain to occur. Losses must be acknowledged and compensated. The past must be treated with respect. Look for and expect grieving, including anger, bargaining to stay in the past, anxiety, sadness, disorientation and depression. The adeptness with which management can lead the organization through this departure phase of the transition will have direct impact on the extent to which planned changes are completed within targeted time frames and with the desired results.

Key Concepts:

Executive leadership shepherds the organization and its people over the bumps in the road.

Notes:

Key Concepts:

Organization development service are “gifts” to managers and staff; they tell you what is going well, and what can be improved.

Ask questions, seek joint solutions, make action plans, act, follow-up and report.

Match staff skills and abilities with new job competency profiles – train to close the gap.

Notes:**C. 2 Staff Surveys/Organizational Development**

The organizational development (OD) survey diagnoses organizational process, policy, human resource and work environment issues that affect staff and organizational performance. Surveying on a regular basis will pay impressive dividends.

Organizational development is a systematic process through which relevant data about the organization and its processes is collected and analyzed and corrective actions planned, implemented and monitored. The specific outcomes sought through an effective organizational development program include alignment of structure, strategy, values and actions, identification of innovative solutions to organizational problems, and establishment of the organization’s ability to develop and renew itself. Further discussion of the benefits of organizational surveying can be found in the appendix of this section.

C. 3 Human Resource Analysis and Profiling

Municipalities need to ensure that their human capital is appropriately trained, motivated and otherwise ‘positioned’ to address future challenges as the organization experiences business transformation.

It is assumed that as local governments embark upon transition to single-window e-Government, many employees will not be ready to perform the functions that will be required as services and processes are re-defined and re-designed and as cultural changes take place within the organization. Hence, there will be a gap between human resource requirements and existing human resource capability and availability. To develop strategies to address this, it is first necessary to identify the magnitude and

characteristics of the gap. To identify this gap, it will be necessary to develop a comprehensive inventory of staff skills and abilities to match against job competency profiles in the new organization.

Local governments will need to take a view of downsizing, staffing up, and training as part of a continuum that ebbs and flows in parallel with a changing organizational culture as catalyst and enabler for continuous process improvement.

Organizational improvements will flow from human resource planning, work process improvement, training and an open communications regime. Moreover, it is essential that a municipality embroiled in a program of rapid change maintain a focus on the aging work force to ensure that there is a combined and integrated succession and training strategy in place. Readers are referred to the appendix attached for further discussion of this issue.

Competency Profiling

A critical enabler for an effective Human Resource Strategy and its component parts - Training Needs Analysis/Training Plan, Succession Plan, Reallocation and Right-Sizing Plan, Staffing Plan - is the development of competency profiles for management and worker positions in the local government.

Competency profiling is important because, as the municipality evolves from a process-oriented to a knowledge-based work environment, the core competencies of those delivering the local government's services will change. The roles of managers will change from 'command and control' to coaches and counsellors whose primary objective is to clear the financial, human, physical and system/information 'hurdles' that

Key Concepts:

Staff the organization to provide good customer service, not to maintain internal power and prestige.

An effective Human Resource Strategy guides hiring, succession planning, staff training and development.

Notes:

Key Concepts:

Match staff skills and abilities with new job competency profiles – train to close the gap.

Training needs analysis focuses on the individual and the organization.

Notes:

prevent front line workers from doing their best. Moreover, the interpersonal, specialized and technical skills that front line workers require in a customer-focused technologically enabled work environment bear little resemblance to those required in traditional government organizations. Core competencies can be developed through a focus group process, with the results subsequently vetted by staff and management.

This information is used in a constructive review process led by the Human Resources section. Once developed, the challenge is to measure existing competencies against the desired future state. It is then employed in staffing actions, especially in succession planning, and as the basis for the training needs analysis.

Training Needs Analysis

Training is one of the essential enablers of 'business transformation', communications and technology being the others.

The question is 'how to identify the training that is essential or necessary to get the job done' from that which stems from misdirected individual perception or that which would be a 'nice and rewarding' experience.

A proper training needs analysis process identifies the training for staff that will:

- ☐ enable the organization to address its mandated requirement
- ☐ enhance the progress of the organization toward its vision
- ☐ assist employees to achieve their full potential and career objectives

- permit the development of a Training Plan that is compatible with the various work schedules within the organization
- facilitate the prioritization of training activities within budget constraints

The Appendix attached presents strategies for developing a training plan.

C 4 Customer Consultation

Section 5.5 of the manual provides guidance for community advisory committees, focus groups and citizen surveys. As a key ingredient in the road map to e-Government, it warrants repetition here. Single window, customer-focused government requires that citizens be an integral part of the processes of planning, delivery, evaluation and re-design of services. Citizens must be engaged in an ongoing dialogue about services, service packages, service standards, and service delivery. They must also be involved in a customer complaints system that expeditiously addresses service problems encountered through each delivery channel.

The private sector needs to consult with customers to maintain their market share. Public organizations also need to know their customers, provide the services that citizen's want, and evaluate themselves based

Citizens know that governments have greater difficulty than the private sector in providing excellent service, but they expect the service to be as good or better, (Citizens First, Treasury Board of Canada). Governments now must work as hard as the private sector to know their customers and to understand the gaps between customer expectations and service delivery standards, satisfaction levels and priorities for service improvement. In fact, since most bureaucracies have expended little effort historically in gathering,

Key Concepts:

Services are re-designed on the strength of citizen input

Citizens expect government service to be as good as private sector service.

Notes:

Key Concepts:

Avoid re-work: build quality into the work process.

Notes:

analyzing and reacting to customer input and have in general cared very little about “delighting their customers”, we now must work “harder” than our colleagues in the private sector to catch up.

It’s all about customers and economics: consulting with customers

Government, like it or not, is in the business of service delivery and as anyone in the private sector service industry will affirm, staying in business is all about “customers and economics”.

The single largest cost factor is the same in the service sector as in the industrial sector: **re-work**. In government, many millions have been expended building and financing processes and systems to correct problems after they have occurred. Unfortunately, this mentality and approach has resulted in most errors being detected after the customer (the citizen) has been engaged. Hence, there are entire work units assigned to recover over-payments to social welfare recipients, to handle referrals and appeals for citizens who believe their taxes have been improperly assessed, and there are massive programs to resolve improperly processed special needs cases and those exiting untrained from the education system. There are no shortages of examples in any government or in almost any government program anywhere in the world.

The answers:

- ❑ Plan and design quality “in” using customer information / Ask the customer up front
- ❑ Train staff to see the world through the eyes of the customer instead of through the eyes of the bureaucracy
- ❑ Institute continuous process improvement based on customer feedback

For greater detail on customer consultation approaches, please see the appendix following this section

C. 5 Total Quality Management

Total Quality Management is a comprehensive and structured approach to organizational management. The approach is premised on a series of quality principles that focus on the enablers and drivers in an organization that lead to success.

These principles tend to be consistent across all total quality management literature, and are well articulated in easily understood terms by the National Quality Institute as follows:

- ☐ **Cooperation, teamwork and partnering**
- ☐ **Leadership through involvement and by example**
- ☐ **Primary focus on clients/stakeholders.**
- ☐ **Respect for the individual and encouragement for people to develop their full potential**
- ☐ **Contribution of each and every individual**
- ☐ **Process oriented and prevention-based**
- ☐ **Continuous improvement of methods and outcomes**
- ☐ **Factual approach to decision making**
- ☐ **Obligations to stakeholders, including concern for responsibility to society.**

Focusing on quality is important for all modern organizations, particularly those with a preoccupation with the provision of 'excellence in customer service'. The hurdles facing organizations moving toward implementation of electronic service delivery tend to be more challenging due to changing

Key Concepts:

Staff the organization to provide good customer service, not to maintain internal power and prestige.

Notes:

Key Concepts:

Total Quality Management:

- Understanding
- Education
- Training
- Continuous Improvement

Notes:

business processes, changing job requirements, different avenues for interfacing with clients and staff, and an overwhelming need to monitor and measure progress toward the attainment of objectives.

Total Quality Management provides an excellent framework for the devolution of decision-making from management to workers and for changing the role of managers and the management paradigm from 'command and control' to one where managers are 'coaches, counselors and clearers of the path' for workers.

Implementation of Total Quality Management focuses first on '**understanding**' by the most senior leadership in the organization of the essence of Total Quality Management. This is followed by '**education**' in principles and concepts for management and staff. Subsequently, '**training**' of management and staff in the structures and tools to be employed in diagnosis and planning of improvements to deliver '**continuous process improvements**' in all processes within the organization is undertaken.

Many of the other modules identified within this document as important parts of the 'road map' to single window government are integral to the Total Quality Management process. These include planning, communications, customer consultation, staff consultation, continuous training, performance measurement and management.

Implementation of a framework for quality improvement not only provides an overarching approach to implementation of single window/E-Government, but also fosters the development of organizational excellence across public sector entities.

D. Business Processes

D.1 Package Services

A customer-focused e-Government provides services to individuals and businesses in a linked, user-focused manner. A “customer-centric” approach is used to meet a commonality of customer needs. The customer is the starting point when considering services that can be “packaged”. Services to individuals are combined into “life-cycle” events, and business interfaces with government are linked based upon functionality (i.e. in an Enterprise Registry) and enterprise segment (e.g. trucking industry, hotel and restaurant sector).

The appendix at the end of this section provides greater detail of the steps required to build a service package “from the outside in”, that is, from the customer’s perspective. The steps outlined in the Appendix are:

- ☐ Begin with a briefing of the Executive Team
- ☐ Identify and define customer groups
- ☐ Define service packages by target group
- ☐ Conduct customer consultation
- ☐ Define customer target group needs
- ☐ Define service packages by target group
- ☐ Prioritize service packages

D.2 Fast Track to Electronic Service Delivery

To be achieved, the move to e-Government will involve a sustained effort over several years. An approach has been developed that enables early wins in the transition to e-Government and, more particularly, Web-enabled services. Through this approach, prototyped Web-enabled services are developed and implemented through a highly iterative, flexible, fast track software development process. Potential transactions are identified,

Key Concepts:

Build your Service package “from the outside in”: based on customer needs.

Know your customers.

Know which customer wants what service packages.

Notes:

Key Concepts:

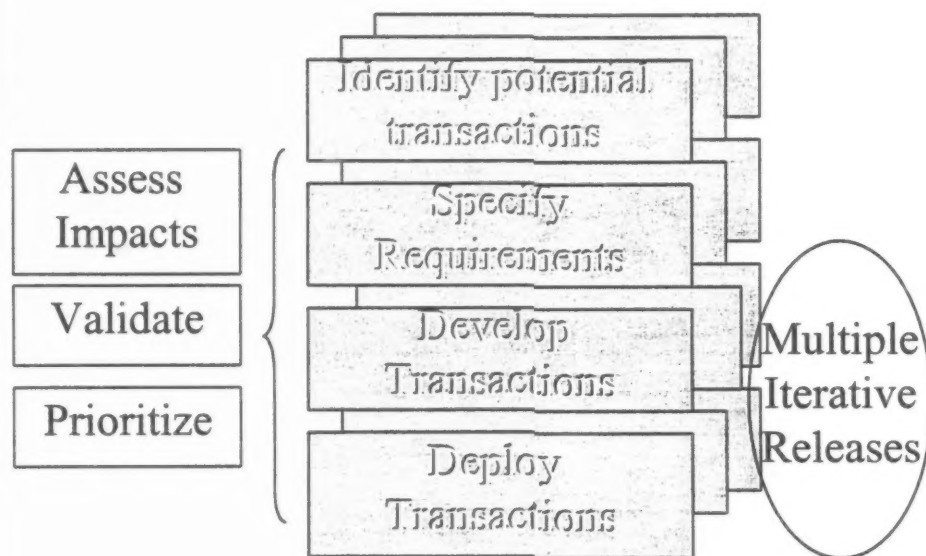
A fast-track software development process will deliver early wins in the transition to e-Government.

Notes:

business requirements gathered and specified, and discrete chunks of Web-enabled functionality are developed and deployed in frequent small releases of short duration. Impact assessment, feedback, validation, and prioritization from the government organization (staff and executives) and citizens are injected into the process throughout, ensuring that the functionality produced is aligned with service goals and customer satisfaction.

The overall approach during this initial implementation of on-line services is to act on quick and simple improvement opportunities while keeping the whole context of business process, customer satisfaction, organization needs and operational efficiency in mind.

ESD Fast-Track Processes



Fast Track Processes can include the following activities and deliverables, depending on the unique constraints and opportunities that every project presents. A step-by-step guide to each of these activities is provided in the Appendix.

Notes:

Step 1 - Plan the Project

- ☐ Confirm Goals and Objectives
- ☐ Organize and Plan Project

Step 2 - Understand the Requirements - Business and Technical

- ☐ Gather requirements
- ☐ Determine opportunities for Web-enabling
- ☐ Define transactions
- ☐ Identify technical infrastructure
- ☐ Conduct Impact analysis

Step 3 - Specify Requirements

- ☐ List features and functions required from the on-line application.
Identify and define the overall business requirements for the on-line store
- ☐ Identify technology constraints and required Web technology attributes.
- ☐ Examine implementation options

Step 4 - Establish infrastructure

- ☐ Look to your IT group to assist you with finding solutions to meet e-Government needs

Step 5 - Prioritize

- ☐ Prioritize to align services with vision
- ☐ Release strategy

Notes:

Step 6 – Design Transactions

- ❑ Align the 'Look and Feel' of on-line services with the 'Look and Feel' of your Web portal
- ❑ Adhere to a foundation for common business function requirements within the government community
- ❑ Use OPEN technologies for ease of adaptation and integration with the existing system and for ready adoption when new systems are to be implemented

Step 7 – Develop Transactions

- ❑ Develop something today, get user feedback early, modify, get feedback, test on citizen population and users, modify in readiness for deployment.

Step 8 – Obtain feedback – Executive, Citizen-facing personnel, Citizens

- ❑ Involve citizens in testing the transactions

D.3 Business Process Improvement

A Business Process Improvement (BPI) project can be undertaken in parallel with the 'Fast Track to Electronic Service Delivery' project. Strategies for conducting a business improvement project are contained in the appendix following this section. An outline of the steps follows below:

Step 1- Plan the Project

- ❑ Look at services holistically
- ❑ Examine why the service is provided
- ❑ Examine ways to improve the service

Step 2- Define Processes behind the services

- ☐ "Asis" workflow
- ☐ Gap Analysis

Step 3 – Where do You Want to Be

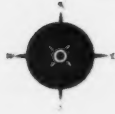
- ☐ "To-Be: process workflow
- ☐ Business Process Prototype

Step 4 – Making it Reality

- ☐ Implementation of new processes, architecture and electronic solutions

Notes:

The function and the purpose



Enabling the customer (citizen) to identify and select the service(s) desired.



Enabling the user to actually select the service and proceed to the point where it can be acquired conveniently.



Enabling the citizen to make the payment (where required) in the most appropriate and convenient manner.



Facilitating the steps whereby the service request may actually be fulfilled by either the service unit itself, or by other agents where that is necessary.



The types of tools (systems and software) that will be used both by the Service entity as well as the fulfilment department to link and integrate to other government systems.



The types of tools used to provide information, both operational and managerial, to the various stakeholder departments, as well as to the Service delivery unit itself.

The tools used

Signage
Portals
Search Tools
Agent Assist
IVR Menu

Catalog
Pay Per View
Digital File
Publishing
Partial Payment
Calendar

Credit Card
Debit Card
Cash
EFT
On-Account

OTC
Canada Post
Outsource
SMTP
XML Stream
ODBC

Oracle
Tuxedo
CICS
TIP

IM
MIS / EIS
Statements

E. Technology Infrastructure

This section contains activities to:

- ☐ Assess your current technology capability to deliver services (transactions) electronically
- ☐ Develop the technical architecture required to build a portal with transactional capability
- ☐ Establish a prototype architecture to “see” your transactions in action prior to going public
- ☐ Develop your Web portal

E.1 ESD Capability Assessment

Assessing the Municipality’s current and planned technology status requires the following activities to be conducted. Details on each of the activities are contained in the Appendix.

- a. Review Current Technology**
- b. Review Business Strategy and Planned IT Infrastructure**
- c. Identify Major Issues, Constraints, and Risks**

E.2 ESD Architecture and Strategy

In this activity, the goal is to develop the target architecture that will enable the Municipality to achieve its service delivery objectives as described in the business strategy, and in business and technical requirements gathering activities. As well, alternative strategies for achieving that architecture and recommendations for selection are noted. The following activities are performed: Further detail on these activities can be found in the Appendix.

- ☐ Define Future Technology Environment & Infrastructure Requirements
- ☐ Assess Infrastructure Standards & Guidelines

Key Concepts:

Develop architecture that enables achievement of service delivery objectives.

Notes:

Notes:

- ☐ Middleware Assess Infrastructure
- ☐ Assess Ongoing and Planned Infrastructure Initiatives
- ☐ Define Target Environment
- ☐ Perform Reusability Assessment
- ☐ Gap Analysis
- ☐ Risk Assessment
- ☐ Identify Alternatives
- ☐ Develop Recommendations

E.3 Establish Infrastructure Prototype

It is recommended that the *ESD Capability Assessment* and the *ESD Architecture and Strategy* activities be well underway prior to establishing the infrastructure prototype for the *ESD Fast Track Processes*. Data gathered and recommendations made in those two activities will provide input to establishing an infrastructure prototype to validate the Web-enabled services that you select. There are robust prototyping tools available with which you can develop functions that are reusable in your initial deployment to the public. The following steps outline in brief the steps to prototyping the technical infrastructure:

Step 1 – Define prototype

In this activity, the technical parameters of the prototype (on-line transaction, application) are defined, including the objective and scope of what it must achieve. How, why, and expected outcomes are articulated.

Step 2 – Prepare Plan

Specify the tasks required to accomplish the prototype. Required resources (both human and technology) must be identified for each task, and an estimated time-to-complete should also be associated with each distinct task.

Step 3 – Establish Prototype Environment

The Prototype environment should ideally resemble the proposed environment as closely as possible. The establishment of any environment requires consideration of the following:

- ☐ Hardware
- ☐ Software

Key Concepts:

Use prototyping tools to develop reusable functions

Notes:

Key Concepts:

Deal with key issues before developing portal.

Notes:

- Middleware
 - Your IT group or external provider also has to consider such things as transaction management, quality, transaction load balancing, persistence management, and naming services, all from a technical point of view.
- Security
 - Security of data is critical in a government setting. Environment Security Specification must take into account:
 - ❖ User Authentication
 - ❖ Authorization
 - ❖ Encryption
 - ❖ Auditing and Logging
 - Implement Security Administration Framework
 - Test Environment Security
 - Approve Environment Security
- Storage (e.g. databases)
- Standards
- Resources
- Operations Management

Step 4 – Execute Plan & Record Results

The various parts of the infrastructure are tested to validate they work as expected within the whole infrastructure. Sample transactions are executed and followed through the various parts to ensure they function, as they should. The findings discovered as a result of the prototyping exercise are documented and adjustments are made where possible to refine the prototype. After assessing the results, recommendations are made regarding the proposed infrastructure solution(s) in question, and new tasks or approaches triggered by the findings are also brought forward.

E.4 Portal Development

You are now ready to develop your Web presence. Among other things, you have:

- ☐ Documented business objectives for developing your portal and the services and information offered on that portal
- ☐ Identified potential improvements to business processes
- ☐ Packaged services from the citizen's perspective
- ☐ Identified the target citizen/customer groups and their requirements
- ☐ Assessed your electronic service delivery capability
- ☐ Developed a target technical architecture
- ☐ Established an infrastructure prototype to build transactions ready for deployment on your portal

A detailed treatment of portal development is provided in the appendix. The content below steps readers through portal development approaches in summary format.

Notes:

Key Concepts:

Make the portal appealing

Smooth navigation, clear organization of material.

Make content interesting and of consequence to customers.

Keep security top of mind.

Notes:

1. First things first.

- ☐ Determine user management issues
- ☐ Identify integration, aggregation and accessibility issues
- ☐ Determine front-end features
- ☐ Determine portal ownership
- ☐ Determine content and Data Issues

Development of your portal can now begin.

2. Checklist of things to consider when developing your portal.

- ☐ Define / understand your goals for creating a Web presence
- ☐ Look and Feel
- ☐ Structure of site / navigation
- ☐ Define the information / services you currently have
- ☐ Technology
- ☐ Promoting your new site

3. Developing your Portal - Overview

In developing a Web-portal presence, the factors to consider include:

- ☐ Look and feel/ Branding
- ☐ Navigation/Structure of site
- ☐ Information and services definition
- ☐ Security Issues
- ☐ Technology requirements

Summary – Portal Development

To effectively establish and evolve a presence on the Web, a Municipality's portal will allow citizens to conduct the types of activities that they would be able to do at a counter with a Service Representative. This will encourage citizens to acknowledge the Web presence as a channel for interacting with the Municipality. To provide the ability for citizens to conduct such tasks as paying water bills, registering their children for swimming lessons, applying for a burn permit, etc. and to allow the Municipality to effectively manage these activities, the Municipality's citizen-facing presence on the Web will include content and portal solutions. The shape of those solutions is what the Municipality needs to discover, depending on business objectives and requirements.

Notes:



APPENDIX 1: Organization Assessment Tool: Planning for e-Government

This tool enables the municipality to determine the state of readiness for E-Government. This assessment tool will also help the municipality to identify priorities and the sequence for focusing on each area. The tool should be completed by managers and staff. The perspectives of the two groups will be important for identifying the changes that are required in the organization and the potential barriers to those changes. An outline of the tool follows:

ORGANIZATION ASSESSMENT TOOL: OUTLINE

Leadership and Planning

- ☐ Sponsorship
 - Executive
 - Political
- ☐ Strategic Planning
 - Values and Principles
 - Mission
 - Vision
 - Cascading Planning Process
 - Performance Management
 - Business Model/Business Case
 - Service Model
 - Channel Strategy
- ☐ Leadership in Innovation
- ☐ Elimination of Departmental Boundaries
- ☐ Promotion of Teamwork
- ☐ Open Communications
- ☐ Clarity of Authorities/Accountabilities
- ☐ Organizational Development Plans

Customer Focus

- ☐ Identification/Stakeholder Analysis
- ☐ Involvement in Planning
- ☐ Extent of Self-Service
- ☐ Involvement in Evaluation
- ☐ Involvement in Re-Design
- ☐ Service Standards
- ☐ Customer Complaints
- ☐ Choice
- ☐ Convenience
- ☐ Control

Staff Focus

- ☐ Competency Profiling
- ☐ Integrated Staffing/Downsizing/Succession Plans
- ☐ Corporate Training
- ☐ Training Needs Analysis
- ☐ Training Plan
- ☐ Labour Relations
- ☐ Performance Management
- ☐ Measurement of Staff Satisfaction

Internal Communications

- ☐ Disciplined Internal Communications
- ☐ Effective Meetings Training
- ☐ Managing the Grapevine

External Communications

- ☐ Plan and Approach
- ☐ Involvement of Staff
- ☐ Media Management

Quality Focus

- ☐ Philosophy
- ☐ Education/Training
- ☐ Continuous Process Improvement Infrastructure

Change Management

- ☐ Appetite for Change
- ☐ Communications
- ☐ Human Resource Policies and Practices
- ☐ Training in Change Management
- ☐ Capture of Innovation

Organization Structure

- ☐ Philosophy
- ☐ Established Remits
- ☐ Focus on Service Delivery

Process Focus

- ☐ Major Processes Defined, Mapped and Documented
- ☐ Key Processes Monitored (to ensure consistency in service delivery)
- ☐ Processes Reviewed Constantly and Improved

IT Infrastructure

- ☐ Hardware/Software Inventory
- ☐ Business Systems
- ☐ Data Bases
- ☐ Architecture Definition (including Security and Interface Architectures)
- ☐ IT Facilities, Organization and Staff
- ☐ Standards and Guidelines
- ☐ Evergreen Plans
- ☐ Strategic IT Plan

Physical Infrastructure

- ☐ Customer/Staff Evaluation
- ☐ Acquisition, Maintenance and Disposal Strategy
- ☐ Access
- ☐ Navigation
- ☐ Health and Safety
- ☐ Ergonomics

ORGANIZATION ASSESSMENT - INSTRUCTIONS

This assessment is a tool available to government organizations to enable them to determine their state of preparedness to begin a service delivery improvement project or to determine the extent to which they have progressed to date. Many organizations wish to move to electronic service delivery to provide greater choice and convenience to their citizens and to achieve reductions in cost. **However, the greatest single reason why such initiatives fail or fail to achieve the potential and desired benefits envisaged is the failure to address cultural issues within the organization.** This tool provides local governments with a holistic review of the organization, including cultural, process and technology issues.

It also provides a means for identifying the specific areas where the organization is well advanced as well as those where some additional effort is required.

There is a possible total score of 100 in each section. The evaluation form can be completed electronically or manually. If completed electronically, (using Excel), the total score of each section will be calculated automatically.

If you do not understand any statement sufficiently to complete the self-assessment, it is advisable to give a '0' for that item.

It is recommended that results will increase in validity if the tool is completed by many people in the organization and all results factored into an average. If lower levels of management or front line staff participate in the evaluation, it may be instructive to aggregate final scores into 3 views:

- ☐ Management
- ☐ Staff
- ☐ Total responses

The perspectives of the two groups will be brought into sharp focus.

In terms of the evaluation results, the following conclusions are suggested:

- ☐ 90-100 – The organization is doing very well in this area.
- ☐ 80-90 – The organization has some additional work to do, but is certainly headed in the right direction.
- ☐ 60-80 – The organization should consider the allocation of additional resources to this area.
- ☐ Less than 60 – Consideration should be given to a thorough review of the approaches used in this area. Fundamentals need to be addressed.

THE EVALUATION TOOL

Organization:				
CRITERIA	KEY RESULT AREA	EVALUATION STATEMENT	Relative weight Assigned	Evaluation
Leadership and Planning	Sponsorship-Executive	The CEO and a majority of the Executive understand and are supportive of the cultural and business changes needed to move the organization to an e-organization.	10	
	Sponsorship-Political	The mayor and a majority of the Councillors understand and are supportive of the cultural and business changes needed to move the organization to an e-organization.	5	
	Strategic Planning:			
	Values and Principles	The organization has developed and documented values and principles and its operation is based on these	10	
	Mission	The mission of the organization is clearly articulated and well known	5	
	Vision	There is a well-understood vision throughout the organization of the e-aspirations of the municipality.	10	
	Cascading Planning Process	Strategic plans are expressed through tactical plans that cascade down to the level of individual employee work plans.	10	
	Performance Management	A system is in place to monitor organizational performance to determine whether strategic goals and business objectives are being met.	10	

Organization				
CRITERIA	KEY RESULT AREA	EVALUATION STATEMENT	Relative Weight Assigned	Evaluation
	Business Model/Business Case	A business case with service delivery costs and funding scenarios has been developed	5	
	Service Model	The organization has identified the services it should deliver and those that should be outsourced or terminated.	5	
	Channel Strategy	Consideration has been given to customer preferences, channel attributes and service attributes to derive a service channel strategy for the organization.	5	
	Leadership in Innovation	The Executive is personally involved in innovation in service delivery and ensures that the staff, customers and other stakeholders are aware of their commitment.	5	
	Elimination of Departmental Boundaries	The Executive takes action to eliminate barriers between business units that impede excellence in customer service.	5	
	Promotion of Teamwork	Management continually encourages teamwork through performance management, recognition and training.	5	
	Open Communications	Management ensures that information flows freely throughout the organization.	5	
	Clarity of Authority/Accountabilities	Management ensures that authority to make decisions is consistent with accountability for all processes.	5	
	Sub Total		100	0

Part VI – Strategic Management

Organization:				
CRITERIA	KEY RESULT AREA	EVALUATION STATEMENT	Relative weight Assigned	Evaluation
Customer Focus	Identification/Stakeholder Analysis	The organization knows its customers and knows which services are used by customer groups	10	
	Involvement in Planning	Customers participate in planning and developing services and in service delivery improvements	10	
	Extent of Self-Service	Customers are able to access information and self serve without staff assistance.	10	
	Involvement in Evaluation	Systems are in place to ensure that customers regularly evaluate services and that action is taken based on those evaluations.	10	
	Involvement in Re-Design	Customer input is employed in implementing changes in business processes.	10	
	Service Standards	Service standards are developed and monitored with customer input.	10	
	Customer Complaints	Processes are in place to ensure that complaints are followed up within an established standard time frame	10	
	Choice	Initiatives are in place to ensure that there are many ways for customers to access services.	10	
	Convenience	Steps have been taken to ensure that customers can access municipal services at times and in ways convenient to them.	10	
	Control	Processes have been modified to ensure that customers control the means used to make payments to the municipality.	10	
Sub Total			100	0

Organization:				
CRITERIA	KEY RESULT AREA	EVALUATION STATEMENT	Relative weight Assigned	Evaluation
Staff Focus	Competency Profiling	The competencies that employees require to excel in their jobs have been identified and documented.	10	
	Integrated Staffing / Downsizing / Succession Planning	Long term, integrated plans to "right size" the organization have been developed.	20	
	Corporate Training	Training and retraining is provided in, among other areas, customer service, team work, computer, business processes and management education.	10	
	Training Needs Analysis	An annual process is in place to identify and provide individual and team training based on job, professional and personal requirements and aspirations.	10	
	Training Plan	A training plan is in place and is being continually implemented, monitored and followed-up.	10	
	Labour Relations	The union(s) is considered to be a valuable stakeholder that is actively involved in planning activities within the organization.	10	
	Performance Management	A performance measurement system that promotes corporate values is in place.	10	
	Measurement of Staff Satisfaction	Staff satisfaction is measured annually at a minimum and the results are used to create an Organizational Development Plan that is regularly monitored.	20	
Sub Total			100	0

Part VI – Strategic Management

Organization:				
CRITERIA	KEY RESULT AREA	EVALUATION STATEMENT	Relative weight Assigned	Evaluation
Internal Communications	Disciplined Internal Communications	There is a communications plan in place. It is monitored to ensure that there is open, efficient and constant communications at all levels of the organization.	50	
	Effective Meeting Training	Managers and staff have been provided with training to ensure that meetings are of appropriate lengths, focused and result in actions.	25	
	Managing the Grapevine	A process is in place to effectively manage potentially negative communications and communications channels.	25	
	Sub Total		100	0
External Communications	Plan and Approach	A strategy to address external communications is in place and is articulated in tactical terms (i.e. specific objectives and activities, resources and measures of success)	50	
	Involvement of Staff	Front line staff is actively involved in disseminating corporate messages to the public.	25	
	Media Management	The External Communications strategy and tactical plans address management of the media.	25	
	Sub Total		100	0
Quality Focus	Philosophy	Management has articulated commitment to quality services.	20	
		Employees are encouraged to innovate and take risks to achieve organizational goals and objectives.	20	
	Education / Training	Management and staff have received quality education.	10	

CRITERIA	Organization KEY RESULT AREA	EVALUATION STATEMENT	Relative weight Assigned	Evaluation
		Management and staff have been trained in the principles of "quality" management	10	
	Continuous Process Improvement (CPI) Infrastructure	A "guidance team" composed of senior managers is in place to approve and oversee continuous process improvement projects.	10	
		A process for developing, reviewing and approving proposals for process improvement is in place.	10	
		Resources have been allocated to support innovation and continuous improvement.	10	
		A process for working on proposals for continuous improvement and innovation is in place.	10	
	Sub Total		100	0
Change Management	Appetite for Change	Management and staff want the organization to change and are looking forward to it.	20	
	Communications	There are strategic and tactical plans to help the organization and its people to leave	20	
	Human Resource Policies and Procedures	Interim policies and procedures needed to support the change initiatives have been considered, documented and made known throughout.	20	
	Training in Change Management	Training for managers and staff in change management has been initiated.	20	
	Innovation	Mechanisms have been put in place to capture and manage new ideas and innovations that always materialize during periods of rapid change.	20	
	Sub Total		100	0

Part VI – Strategic Management

CRITERIA	Organization: KEY RESULT AREA	EVALUATION STATEMENT	Relative weight Assigned	Evaluation
Organization Structure	Philosophy	There is a management philosophy(ies) in place which drives the current organization structure.	40	
	Established Units	The structure, mandates and criteria underlying the composition of business units in the organization are known.	30	
	Focus on Service Delivery	The organization is structured to support excellence in customer services.	30	
	Sub Total		100	0
Process Focus	Major Processes Defined, Mapped and Documented	All significant business processes have been defined and mapped, validated by staff and clearly documented.	30	
	Key Processes Monitored	Performance indicators for all business processes are established, regularly monitored and followed-up.	40	
	Processes Reviewed Constantly and Improved	There are processes in place to ensure that all business processes are constantly analyzed and subjected to continuous process improvement.	30	
	Sub Total		100	0
Information Technology	HW/SW Inventory	Hardware and Software Inventory is available and up to date	3	
		Mainframes and server platforms conform to current industry standards	6	
		Desktop platforms conform to current industry standards	6	
	Business Systems	Business systems share the same customer data.	7	
		Business Systems use a common customer identifier.	8	

Part VI – Strategic Management

Organization:				
CRITERIA	KEY RESULT AREA	EVALUATION STATEMENT	Relative weight Assigned	Evaluation
	Data Bases	Databases are integrated as part of a single architecture.	5	
		Databases have a SQL Interface.	5	
	Architecture definition, including security and interface architectures	Technology architecture addresses business requirements.	5	
		Information architecture addresses business requirements.	5	
		Business systems architecture address business requirements	5	
		IT security addresses business requirements.	3	
		Data and systems architectures have a customer focus.	2	
	IT facilities, organization and staff	There is a single chief IT executive, or Chief Information Officer.	5	
		IT is organized enterprise-wide instead of separately by line of business.	5	
		There is an architecture group addressing IT functions across lines of business.	3	
		The IT section has the capability to undertake major new initiatives.	2	
	Standards and guidelines	Standards and guidelines are complete.	3	
		Standards and guidelines are complied with.	3	
	Evergreen plans	IT inventory has a lease or depreciation period of 4 years or less.	5	
		There is a formal programme for technology renewal.	5	
	Strategic IT Plan	There is a strategic IT plan.	3	

Part VI – Strategic Management

Organization:				
CRITERIA	KEY RESULT AREA	EVALUATION STATEMENT	Relative weight Assigned	Evaluation
		The IT Strategic Plan is linked to the Business Strategic Plan.	3	
		The IT Strategic Plan drives IT initiatives.	3	
	Sub Total		100	0
Physical Infra-structure	Customer/Staff Evaluation	The input of staff has been solicited to evaluate the adequacy of work space.	10	
		The input of customers has been solicited to evaluate the adequacy of space used to provide customer services.	20	
		There has been follow-up on suggestions provided by staff and customers.	20	
	Acquisition, Maintenance and Disposal Strategy	Plans are in place and are followed for the acquisition, maintenance and disposal of physical assets.	10	
	Access	Municipal premises are accessible to the physically challenged.	10	
	Navigation	Good signage is in place to ensure that customers can easily access services.	10	
	Health and Safety	There is an active Health and Safety Committee in place.	10	
	Ergonomics	Steps have been taken to ensure that the working environment is ergonomically sound.	10	
	Sub Total		100	0

APPENDIX 2: Organizational Structure and Design

Notes:

Traditional organizational structures:

- ☐ tend to fragment the organization
- ☐ create vertical communication channels and inhibit horizontal communications
- ☐ insulate service units from one another, ignoring the cross functional requirements of customers
- ☐ prevent business units from sharing their strengths and learning from each other.

Some of the approaches to organizational design are to group people and work units by:

- ☐ customer
- ☐ knowledge or skills – universities and hospitals tend to use this structure extensively
- ☐ work process and function – many manufacturing firms organize themselves in this manner
- ☐ time – used in conjunction with grouping by work process and function to organize work into shifts
- ☐ product or output
- ☐ place – geographical location

There is a place for application of all of these methods; however, for an organization to be citizen centric and customer-oriented, customers and their needs must be given priority.

In addition, there are five predominant structural types to consider:

- ☐ Functional

Key Concepts:

Design
organizational silos
out of your
organization.

- ☐ Divisional
- ☐ Hybrid
- ☐ Matrix
- ☐ Network

Notes:

The characteristics as well as the advantages and disadvantages of each of these types is well known and does not warrant repetition here. Generally speaking, purely functional and divisional organizations have disappeared in favour of matrix organization structures. Network structures have appeared where extensive outsourcing of services has occurred.

However, self-service is not, and will not for the foreseeable future be the only manner in which local authorities deliver services. No single organizational design will, therefore be universally effective. Managers must examine the external and internal environment to identify the design to suit the circumstances.

The design adopted will be most effective if input from customers and employees is sought and utilized. In soliciting the input of customers, staff and management in the redesign initiative, leaders can articulate the vision for the new organization. The organization needs to be **lean, flat and fast**.

As our approach to service delivery reform moves to a format where customers help to design systems and procedures, customers self-serve, customers evaluate the service (on-line), and customers assist with re-design (i.e. "continuous process improvement"), **client/customer perspective** as mentioned above, must be kept front and centre.

In view of these objectives, it is essential that information and data are easily available throughout the organization. This means that we must 'build in' as **few silos** as possible. "No" silos would be preferred; however, as soon as an organization chart is drawn with lines of authority, responsibilities and accountabilities, the natural human tendency is to move toward a "command and control" mentality. Only through training, teamwork and vigilant and progressive **leadership** will the negative impact of silo-ed thinking be driven out, or at least minimized.

Self directed work teams and the placing of decision-making at the staff level are most appropriate ways to ensure an organization that is reactive to customer needs, essentially delighting the customer. Organizations like this realize the benefits of continuous process improvement, and react quickly to the market place and opportunities made available through innovation.

Performance reporting is absolutely integral to the success of an organization. If a local government is to be lean and efficient, it is essential that the new organization be structured around data flow and workflow:

- ❑ Eliminate hand-offs, redundancy and re-work
- ❑ Structure in a manner that reflects the logic and interrelationships of the work and the needs of customers.

(Note: No attempt will be made in this document to describe a step-by-step process for organization design, since that design would, of necessity, follow an analysis of the current structure and extensive validation of the future vision for the organization with the leaders. However, the following "Guiding Principles" are presented for consideration:

Key Concepts:

Structure to simplify work process.

Notes:

Notes:

- ❑ The organization should be designed to effectively deliver the services necessary to meet its mission, goals and objectives rather than to accommodate individuals. Never design an organization around incumbent managers. Managers are simply too mobile.
- ❑ A regional system should provide the same or similar core services in each region.
- ❑ Responsibility for specified tasks should be assigned to the lowest level of the organization at which there can be found sufficient ability and information to carry them out competently. In that way, the organization will make most efficient use of its resources.
- ❑ Duplication and fragmentation of roles and responsibilities should be avoided.
- ❑ Clear delegation of authority, sufficient to carry out assigned tasks, should exist for all responsibility centres.
- ❑ The degree of decentralization (and centralization) should be based on environmental forces outside the organization, its history, size and growth, and internal characteristics such as the work to be performed and the philosophy of management.
- ❑ The span of management, which gives consideration to the variety of functions and nature of the services delivered, should reflect a desire to keep management costs at a minimum while providing effective support and control.
- ❑ The number of management levels should be kept to a minimum with no one-on-one reporting relationships.
- ❑ Each employee should be accountable to one supervisor on a line basis. Employees need to understand that they can and will report on both a line and functional basis, and the differences between the two. This is essential as the move to e-services occurs.
- ❑ The structure should reflect the primary responsibility of managing divisional programs effectively within available resources.

APPENDIX 3: Staff Surveys/Organizational Development

Notes:

Staff surveys can be implemented using off-the-shelf tools such as the *Campbell Survey*. The exercise is extremely valuable in terms of measuring staff attitudes toward the organization and management and in setting the course for corrective action. However, these formal tools tend to be expensive to sustain year over year.

The major benefit of the process is achieved through very simple “add-on” questions to the statistical portion of the survey and the debriefings on a team basis that follow the surveys. Staff views are obtained through a diagnostic exercise to identify the root problems of the symptoms frequently identified during the surveys. Staff and management then work together to identify solutions, time frames and assignment of resources.

Management involvement is critical. Neglecting to do this will render the process sterile, to the point where response rates will be reduced to a level where the process becomes a waste of time for management and staff. A comprehensive program of debriefings, organizational development planning and follow-up “report cards” will avoid a sterile process, ensure that problems and concerns are addressed, and result in a healthier organization.

This methodology also provides assistance in shaping and molding a development program for middle managers. There is a danger that staff input can be misused to ‘purge’ the system of those managers deemed incapable of leading the organization over the anticipated hurdles as rapid change occurs. This is a pit fall to be avoided as it can quickly undermine the entire process. There are other, more effective means of addressing a ‘middle management problem’ that will not compromise the organizational development survey

Notes:

process. The most effective way of addressing this problem is training and coaching those managers who require it.

Organization Development and Change Management are inextricably intertwined. The origin of the two processes must be at the top: with the Executive. The organization must be viewed as a living organism and as such guided, nurtured, evaluated and constantly subjected to course corrections. Understanding and diagnosing organizations is essential if the gains made, as the organization becomes customer-focused and moves into the world of electronic service delivery, are to be sustained.

APPENDIX 4: Human Resource Analysis and Profiling

Analyzing and addressing the gap between human resource requirements and current human resource skills can be complicated by the fact that some organizations are over-staffed. For many years organizations (arguably public more so than private) espoused a “bigger is better” ethic during which they acquired more employees than needed, especially managers. In an environment where funding was relatively easy to access and a monopoly existed, growth in numbers of employees went largely unnoticed. Moreover, as a symbol of prestige and power, senior managers were highly motivated to maintain numbers at excessive levels.

Thus, the challenge becomes more than matching staff available to the requirements of the re-invented organization. Steps must be taken to ensure that the numbers of managers and staff are commensurate with delivering outstanding services to the customer on an economical basis.

The scarcity of resources and the need to identify sources of funding to fuel business transformation needed to enable survival adds complexity to the situation.

However, the experience of literally thousands of organizations that have attempted to accomplish these objectives by means of a “short term” approach have generally resulted in short term cost reduction followed by long term woes. Part of the problem has been that the reason for staff reductions has often been cash shortages as opposed to elimination of the gap between needs and resources available. Research into organizations that have embarked upon downsizing using a short term, quick hit approach has shown that these organizations did not improve organizational performance.

Key Concepts:

An effective Human Resource Strategy guides hiring, succession planning, staff training and development.

Notes:

Key Concepts:

Roles of managers will change; roles and skills of workers will change to reflect new service delivery methods.

Notes:

It is also essential that a Human Resource Strategy be based on the strategic direction of the organization.

Once operational, an effective strategy will serve to guide succession planning, staff development, and staff acquisition/downsizing.

This information is needed to implement the tactical plans that will be instrumental in moving the organization towards achievement of its vision and in determining the extent to which there is a business case, which in turn will dictate the speed at which the vision can be realized.

This part of the road map provides a comprehensive set of interrelated processes designed to help the local government identify:

- ❑ those employees who will exit the organization during the transition period through retirement and who are also considered 'mission critical';
- ❑ incumbents who will not be required in their present positions due to outsourcing, elimination of unnecessary work, re-engineering of work processes;
- ❑ employees who have the aptitude and desire to accept new responsibilities or replace exiting staff who will be needed in the organization;
- ❑ foreseen vacancies where timely staffing action is required.

APPENDIX 5: Training Needs Analysis

The process to develop a training plan is as follows:

- ☐ provide data from succession planning to identify those incumbents exiting the work force together with identification of those with the interest and aptitudes to replace them
- ☐ provide human resource needs by position type based upon the business plans of the organization
- ☐ identify the 'core competencies' for all categories of positions in the organization
- ☐ provide a comprehensive history of training experiences by individual
- ☐ enable identification of prioritized training needs by individual based on a self-assessment against core competencies for the position occupied as well as for the next position in their career path
- ☐ provide for vetting of the self-assessment through a 360-degree review.

Locate sources of information that will provide facts and opinions to define training precisely. Look for information here:

- | | |
|---|---|
| ☐ customers | ☐ performance appraisals |
| ☐ policies | ☐ productivity reports |
| ☐ laws | ☐ departments |
| ☐ management practices | ☐ work groups |
| ☐ budgets | ☐ informal cliques |
| ☐ financial results | ☐ physical environment |
| ☐ annual plans | ☐ specifications |
| ☐ schedules | |
| ☐ procedures | |
| ☐ equipment/hardware | |
| ☐ systems/software | |



Notes:

APPENDIX 6: Consulting Customers: customers and economics

Organizations are moving swiftly toward implementation of what they believe to be less costly “electronic service delivery”. Depending on the service in question, the implementation of live operator tele-services can typically reduce the cost of delivery ‘over-the-counter (OTC) by 25%. Automated tele-services (i.e. Interactive Voice Response) can reduce OTC costs by 75%. Web-based services can reduce OTC costs by up to 99%.

However, those who rush head long into electronic service delivery without first establishing open channels of communications with their customers will almost certainly exchange physical silos for electronic ones. Now, instead of the customer being required to ‘run around’ physically, they must ‘run around’ electronically. Unless customer communications strategy and structure are firmly established, new channels of service delivery mean new ways for the customer to ‘run around’ to chase down government services. Potential cost savings will be forgone. In the worst case scenario, costs can increase if the customer does not take advantage of the new, less expensive channel that the organization has just expended scarce resources to construct. More importantly, the citizen will not be delighted with the service. Ideally, organizations that wish to reduce costs and delight their customers will attempt to establish a culture where:

- the customer helps to plan the systems and processes through which they access desired services;

Notes:

- ❑ the customer navigates through the e-Government network solo and actually carries out the transaction on their own;
- ❑ the customer evaluates the transaction, the process or the entire system on-line and submits their evaluation electronically; and
- ❑ the customer provides input to the system re-design.

All modern service organizations, including governments, must invest in customer consultation and quality if they are to survive. The citizen will accept nothing less once they realize that it is possible and that they deserve it.

What Information to Gather and What to Measure:**Step 1: Clarity on Services**

First, the organization will need to be clear on the services that they provide to the public and who their customers are. These are deceptively simple issues to raise, but may require some work to identify unless a stakeholder analysis and 'grouping' process has been completed, and service packages have been defined. When embarking on effective customer consultation, it is advisable to segment customers into appropriate target groupings to enable communications that relate specifically to services received and that are therefore important to both customer and the municipality.

For example, it may be useful to divide services, data and customers into 3 major groupings – those relating to land, those relating to enterprises, and those relating to individuals. Further analysis of the services provided within these sectors may disclose that some services are accessed

Notes:

sequentially to achieve an end result. In such instances, any evaluation associated with any one service may have little relevance, since it is the 'service package' to which the customer relates the service experience.

Step 2: Choose Consultation Method

Once customer groupings and service packages have been identified, consideration is needed with respect to the form of customer consultation most suited to the process, service and service delivery vehicle. For example, an advisory committee structure, interview process, and/or focus group regime may be deemed appropriate to assist in the planning of physical or electronic architecture or for process re-design. Customer comment cards, exit surveys and annual telephone or mail-out surveys may be most appropriate to define customer service expectations and satisfaction levels.

Step 3: Determine service satisfaction

The following service features would commonly be evaluated in determining customer satisfaction with government services:

- accessibility
- waiting time
- service time
- knowledge of service representative
- completion of service or quality of service
- physical facilities

It is important to ensure that whichever service features are selected for benchmark measurement and evaluation, that they are repeated at designated intervals, using consistent criteria.

In addition to an appropriate mix of service features, opportunities may also be presented through customer consultation to gather demographic data, although care must be taken not to be too intrusive. A significant response rate is always high on the list of critical success factors for customer consultation.

APPENDIX 7: Business Processes

Step 1 – Executive Briefing

An understanding of the “service packaging” concept, particularly from the citizen (customer) perspective, is essential at all levels of the municipality, starting at the CAO/ Executive level. The commitment of Senior Management is key to the success of linking services for improved service delivery to the citizen.

A Workshop is recommended to:

- a) Prepare executives and process owners;
- b) Brainstorm ideas, following steps below
- c) Assign resources to gather data about citizens’ needs, as required

A Follow-up session is required to:

- d) Prioritize service packages
- e) Select processes that support service packages for “process improvement”.

In preparation for the Workshop:

- Prepare a list of services to citizens and businesses provided by your Municipality
- Obtain results from Stakeholder Analysis

Understanding who your customers (citizens) are and what their needs are is integral to packaging services. The Stakeholder Analysis that the Municipality has already performed is a starting point for gaining that customer knowledge. There will be other opportunities in this process to solicit customer feedback.

- Obtain Business Plan already prepared by your Municipality
- Create “Service Package Concepts & Process” presentation

Key Concepts:

Know your customers.

Notes:

Notes:

- Create agenda
- Invite participants

Step 2 - Define Target Groups

Who are you serving? Do you know who your customers (citizens) are?
Using brainstorming techniques, note all of the possible groups of citizens based on common needs. Start by:

- Segmenting the citizen population you serve into major distinctive customer groups, for example:
 - (1) Enterprises/businesses,
 - (2) Individuals
 - (3) Users of GIS services
- Identifying Target Customer Groups within each segment
 - (1) Businesses - e.g. car dealerships, law offices, construction companies
 - (2) Individuals – commuters, new home owners,
 - (3) Users of GIS services – home owners, law offices, hikers, off-shore drilling

Step 3 - Define Service Packages by Target Groups

- Identify services to outsource or drop.

At the time of reviewing Services or Service Packages with Executive Stakeholders at a Municipality, services need to be reviewed to determine which non-mission critical services may be candidates for outsourcing, or which ones may not be providing the Municipality with a sustainable competitive advantage, in other words, there is no sound reason to continue delivering some services. This examination of services is a valuable exercise, because it will eliminate from the list those services that will be provided by a third party, or be dropped entirely, and therefore will not be considered as part of your service delivery.

- Identify Service Packages by Life Episodes

'Life episodes' or 'Life events' are particularly useful because services can be related that help the individual citizen – **people** - achieve specific goals, thereby providing meaning and connectedness to the citizen. Some examples are:

- Lost wallet
- Going away
- Moving house
- Learning to drive
- Child to enroll in school
- Marriage
- Having a baby
- Pensions and Retirement
- Death and Bereavement
- Looking for recreation
- Buying a car
- Getting a driver's license
- Looking for a job
- Complaints about services
- Looking after someone
- Buying property

Key Concepts:

Know which customer wants what service packages.

Notes:

Key Concepts:

Consult individuals, the business community in general and special interest groups.

- ❑ Identify Service Packages by Events

For **enterprises**, relate services by 'Events'. The events may be:

- Opening a Restaurant
- Purchasing commercial property
- Opening a Convenience Store

Step 4 - Conduct Customer Consultation

The approach to gathering feedback from customers needs to consider who the customer is, i.e. a business, an individual, or users of geographical services. Therefore Customer Consultation needs to be adapted to the major groupings, or segments, of customers, as follows:

Enterprise Consultation

- ❑ Interview businesses
- ❑ For each type of business (e.g. car dealer, restaurant owners), interview at least 2 businesses
- ❑ Use questionnaire to gather data.
- ❑ Document a customer process map depicting activities, documents and information required of the customer, points of contact with government, information required from other levels of government, other agencies or the private sector

Note: You can create your own questions and documentation if an external consultant is not being used for this exercise.

People Consultation

- ❑ Interview customers one-on-one or in focus groups to determine their experience with various services, or service packages
- ❑ Use questionnaire to gather data.

- ❑ Document a customer process map depicting things and information required of the customer, points of contact with government, information required from other levels of government, other agencies or the private sector.

Note: You can create your own questions and documentation if an external consultant is not being used for this exercise.

Consultation with primary users of Geographical Services

Geographical Services might include digital mapping, land title registry, and property assessment. Generally, it is not individual citizens who use these services, but specific kinds of businesses or associations such as housing developers, realtors, property appraisers, financial institutions, paralegals and lawyers.

- ❑ Set up an Advisory Committee with participation from these businesses or associations
- ❑ Use questionnaire to gather data.
- ❑ Document a customer process map depicting activities, documents and information required of the customer, points of contact with government, information required from other levels of government, other agencies or the private sector.

Note: You can create your own questions and documentation if an external consultant is not being used for this exercise.

Ongoing Customer Consultation

- ❑ Further to these initial customer consultations, ensure customer feedback loops wherever and whenever feasible. This can be achieved in a variety of ways:

Key Concepts:

Set up ongoing customer consultation strategies.

Notes:

Notes:

- ❑ Ask for citizen comments (e.g. Exit Surveys – brief, few questions) at Over-the-Counter Centers or on your own Web site
- ❑ Conduct ongoing customer focus groups
- ❑ Ensure that each Service Package addresses all customer concerns for specified needs.
- ❑ In larger Municipalities, name a Customer Liaison for each major Target Customer Group. Each liaison works with a designated Customer Group, relaying information on needs back to the department(s) responsible for service delivery. (Customer → Customer Liaison → Feedback to service delivery).

Step 5 - Define Target Groups (based on Customer feedback)

- ❑ Update Target Group definitions using customer feedback.

Based on Customer Consultation, describe customer needs, objectives, complaints, and usage patterns of services. As well, describe real-life examples of the customer experience to illustrate areas for improvement.

Step 6 - Define Service Packages by Target Group

- ❑ Update the initial Service Packages using customer feedback.

Add or delete or modify services that meet customers' needs. These services are internal and external, as well as future. Consider opportunities to integrate processes of other local governments, central government, other agencies, and the private sector with that of the Municipality.

Step 7 - Prioritize Service Packages

- ❑ Classify the Service Packages using criteria such as:
 - (1) Complexity to delivery (e.g. crosses departments, crosses different government entities)

Notes:

(2) Complexity to the customer

(3) Mandatory, or not. For example, is this service legislated?

- ☐ Review service packages with Executive Stakeholders and prioritize.
- ☐ Obtain direction on the "Top 10" service packages for further definition.

Summary – Packaging Services

You now have a key signpost in the road map to e-Government. You know which service delivery areas to focus on for electronic service delivery, regardless of the channel through which the services are delivered. You will decide in the Channel Strategy exercise which services should be delivered On Line, Over the Counter, Call Center, IVR, from the customer's perspective. You now know which processes you will select for improvement and automation.

APPENDIX 8: Fast Track to Electronic Service Delivery

Notes:

Step 1 - Plan the Project

☐ Confirm Goals and Objectives

In your Business Planning exercise, your Municipality would have articulated its electronic service delivery, or e-Government, vision and goals. This vision may be a joint effort with other Municipalities and Service Nova Scotia. Now that you are planning implementation you will want to examine the vision and goals, and identify objectives and critical success factors to include in your e-Government project. If your objective is to provide services on-line to the citizens you serve, the project you will be implementing is a Fast Track to Electronic Service Delivery.

☐ Organize and Plan Project

1. Assemble the team

- ☐ Establish a project manager position, internally or externally, to ensure your project is successful. If your Municipality has teamed up with other Municipalities and other government entities, a project manager to coordinate activities across government groups is essential. If you are working with an external provider for project management as well as business requirements and technical needs, verify their project management standards for quality assurance.

☐ The 'fast track' team consists of

- Project Manager
- Lead technologist

- Business analyst(s)
- Process owners in the Municipality
- Application Analyst(s)
- Application Developer(s)
- Citizen representative(s)

2. Identify activities required to fulfill the objectives of the project.
3. Create a project plan with dates, resources, time durations assigned.
4. Review plan with Executive Stakeholders

Step 2 – Understand the Requirements – Business and Technical

- Gather requirements

Interview those within your organization who are responsible for delivering services – front office and back office personnel, process owners and technical personnel – to obtain descriptions of how services are delivered today, including any that may already be Web-enabled. If your Municipality is very small, this might be quite obvious. However, documenting how services are currently delivered, even at a high-level, will be useful as you proceed.

- Determine opportunities for Web-enabling

If you have engaged an Information Technology company to Web-enable your services, a business analyst from that company would work with process owners in your organization in identifying content and transactions that could be placed on line. The external provider may have already developed or acquired functionality, rather than creating it from scratch.

Some of the **Customer Facing** services to consider are:

- Electronic forms
- View & purchase catalog products on-line
- Make bill payment by credit card
- Frequently Asked Questions (FAQ)
- Link to other Web sites

Notes:

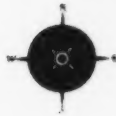
- Allow external applications to 'jump' into the middle of *on-line transactions* from an external location
- On-line tutorials, or wizards to assist with learning or decision making

Some of the **Fulfillment** services to consider are:

- File generation
- Report generated automatically
- Batch update to another application
- Immediate on-line update to another application
- Log an unsuccessful update to another transaction
- Generate report of unsuccessful updates to another transaction
- On-line cross validation to another application or system

Web technology tools that can enable these and other services are listed below:

The function and the purpose



Enabling the customer (citizen) to identify and select the service(s) desired.



Enabling the user to actually select the service and proceed to the point where it can be acquired conveniently.



Enabling the citizen to make the payment (where required) in the most appropriate and convenient manner.



Facilitating the steps whereby the service request may actually be fulfilled by either the service unit itself, or by other agents where that is necessary.



The types of tools (systems and software) that will be used both by the Service entity as well as the fulfilment department to link and integrate to other government systems.



The types of tools used to provide information, both operational and managerial, to the various stakeholder departments, as well as to the Service delivery unit itself.

The tools used

Signage
Portals
Search Tools
Agent Assist
IVR Menu

Catalog
Pay Per View
Digital File
Publishing
Partial Payment
Calendar

Credit Card
Debit Card
Cash
EFT
On-Account

OTC
Canada Post
Outsource
SMTP
XML Stream
ODBC

Oracle
Tuxedo
CICS
TIP

IM
MIS / EIS
Statements

☐ Define transactions

An application analyst takes the data gathered by the business analyst and defines and categorizes the transactions – simple to do, medium, complex – depending on the technical infrastructure in place or to be installed in the near future. (See Establish Infrastructure)

☐ Identify technical infrastructure

A technical analyst takes inventory of your existing infrastructure (servers, communication network, operating system, interfaces) to understand what exists today and what is required to enable you to reach your e-Government goals. (See Establish Infrastructure)

☐ Impact Analysis

Assess impacts of implementing on-line transactions on various aspects, such as: citizen, service packages, business processes, technology, organization, and delivery channels. The goal of establishing transactions on-line is to improve and enable service delivery to citizens, to streamline processes, to reduce costs and efforts where possible. Therefore, the ability to complete a transaction electronically is considered in context of the benefit that it will provide.

Notes:

The table below gives you a guideline to assess whether or not you are aligned with your e-Government objectives:

	Perspective	Questions
When	After initial identification of potential transactions	Assess impacts as soon as potential electronic transactions are identified, in order to eliminate undesired candidates early.
What	Mission and Key Result Areas (KRA)	Does the on-line transaction align with mission and KRA?
	Service Package	Does the transaction fit into a Service Package? What is the overall e-capability of the Service Package?
	Priority	Is the transaction a high priority to the citizen? It may not fit into a Service Package, but should be included for implementation because it is high priority.
	Business Process	Has the "as-is" Business Process been defined, at least high-level? What changes are required to the Business Process with the implementation of this on-line transaction?
	Channel Strategy	Does electronic transaction align with your Channel Strategy?
Who	Citizens; Businesses	Does the transaction provide effective interaction between citizens, businesses, organizations and partners?
	Media Strategy	How will citizens be informed of this capability?
	Citizen-facing personnel	Will training of your personnel be required?
	Back-office personnel	Will changes be required to back-end systems and processes?
	Organizational Structure	Does the organization support services delivered on-line? What needs to be added/changed to support?

Impact analysis enforces the integration of key aspects of 'Transition to Single Window Government', as follows:

Notes:

- **Business** - business analyst and Municipality representatives (business process owner, technical analyst, citizen liaison) has investigated the business process, system and citizen impacts
- **Cultural, organization, people** - cultural architect has investigated alignment with priority, mission and key result area(s), channel strategy, organizational structure, training needs of customer-facing personnel
- **Technical - application** analyst has defined and confirmed the transaction as a firm candidate for on-line development; lead technical architect will know what infrastructure and technical environment are required to develop the transaction.

Step 3 - Specify Requirements

- List features and functions required from the on-line application. Identify and define the overall business requirements for the on-line store, such as:

Identify requirements for:
• Bilingual Support
• Hours of Service
• Graphical Presentation
• Anonymous users
• Security
• Tax calculation
• Methods of Payment
• Support
• Notifying partner that payment collected
• Links to Accounting/Financial
• Reporting
• Automatically generated Receipt e-mail
• Other requirements

Notes:

- ❑ Identify technology constraints and required Web technology attributes.
- ❑ Examine implementation options

Step 4 – Establish infrastructure

Your Information Technology group, or external IT provider, looks at the capabilities of electronic service delivery (ESD) solutions in the market place to meet your e-Government needs. Infrastructure requirements are provided by the IT group, and presented to your procurement process for approval and purchase. Pre-production testing and demonstration of the selected Web-enabled services can take place if (a) technical infrastructure and test environment is in place; or, if not (b) if the IT group/provider has already developed the capability to build a prototype and demonstrate the transaction.

This step is presented in fuller detail in the Section E *Technology Infrastructure*.

Step 5 – Prioritize

- ❑ Prioritize

Prioritize with Executive Stakeholders to determine which transactions are in line with their Vision and Key Result Areas for service delivery to their citizens.

- ❑ Release strategy

Develop a release strategy that incorporates your priorities, ease of building prototype or test transactions, technology infrastructure in place, implementation options. Each release proposed will list the transactions to be developed, and development and user acceptance work effort expected.

Step 6 – Design Transactions

The IT group/provider that you choose for Web development should have a software development methodology it follows to develop what you have specified in previous steps. A few principles that you want the software developers to follow are:

- ❑ Align the 'Look and Feel' of on-line services with the 'Look and Feel' of your Web portal resulting in a common 'face' to your citizens, regardless of the particular government service or product requested
- ❑ The interaction between citizens and government fall into one or more components of the Shop Cycle: Navigate, Purchase, Collect, Fulfill, Post, Inform. Each transaction is matched to appropriate component(s) in the Shop Cycle
- ❑ Adhere to a foundation for common business function requirements within the government community
- ❑ Where possible, use OPEN technologies for ease of adaptation and integration with the existing system and for ready adoption when new systems are to be implemented

Notes:

Notes:

Step 7 – Develop Transactions

The intent here is not to illustrate the development phase of the software application development cycle. That is the domain of your IT group or external IT provider. However, it is necessary to advise that an iterative development process is preferable, whereby there is heavy user involvement. The user is your front-line personnel and citizens. Rapid development methodologies take the approach of 'develop something today, get user feedback early, modify, get feedback, test on citizen population and users, modify in readiness for deployment. This approach fosters ownership of the service delivery within your Municipality, transfer of knowledge about the transaction, rapid time to delivery, and conscious media management.

Step 8 – Obtain feedback – Executive, Citizen-facing personnel, Citizens

It is recommended that your personnel and representatives from the citizen population you serve participate in testing the transactions throughout the various stages of the software development life cycle. The idea is to expose these new transactions early to your stakeholders or their representatives to confirm their viability as a mechanism for service delivery. Some transactions will not stand scrutiny. This is seen as a positive, providing early opportunity to examine variations or to abandon without further effort.

APPENDIX 9: Business Process Improvement

Business Process Improvement

Step 1 – Plan the Project

A Business Process Improvement (BPI) project can be undertaken in parallel with the 'Fast Track to Electronic Service Delivery' project. The scope of the BPI project is the whole service delivery process, not just the parts that you Web-enable. This kind of project examines why a service is provided, how all parts of it can be improved, including manual processes. Looking at the processes holistically, with involvement from front-line personnel and citizens, as well as back office staff, can result in connecting up services where previously there was runaround.

Step 2 – Define Processes behind the Services

□ "As-is" workflow

Describe the current workflow prior to Web-enabling services. In the 'Fast-Track' process, business process definitions specifically address workflow around the new on-line transactions to be deployed. If your objective had a wider business process improvement scope, business process definition would incorporate **all** aspects of service delivery – manual processes, other systems and technologies used in delivering services, and so on. In either case, you want your IT group/provider to address the processes that support delivery of service and how the processes change because of the implementation of on-line transactions. These process changes impact how your Municipality is organized, skills required of your personnel, training needs, and so on, addressed

Key Concepts:

Look at all parts of a service to find improvements.

Notes:

Key Concepts:

Describe current workflow.

Describe future workflow.

Notes:

throughout this document.

□ Gap Analysis

A gap analysis is performed between the business requirements for the new processes (future state) and the existing process. This analysis will highlight the issues and constraints, providing input to designing new processes to support the new transactions.

Step 3 – Where do you want to be

□ “To-Be” process workflow

During the **design** phase, various factors are considered when designing improved processes, such as:

- Business goals for service delivery,
- Feedback from citizens and businesses
- Disconnects in the service delivery processes
- Duplication of effort
- Excessive manual processes
- Bottlenecks and relationships
- Resources, skills and training, and so on.

Workflow activity diagrams of the “To Be” processes are developed, gap analysis is performed between the current processes and the “To-Be” processes, and proposed solutions and architectures are developed to meet the needs identified by the gap analysis. These are verified with process owners, executives and citizens. Alternatives within the entire business process that supports a Service Package may be developed, and decisions are required

from the Municipality prior to prototyping the new processes, on-line services and automated functions.

☐ Business Process Prototype

Business process improvements are integral to implementation of e-Government – otherwise local government faces the obvious risk of automating very poor processes. The approaches employed to ensure that appropriate processes are automated are as follows:

- Business processes within the organization and interfaces with external agencies or other governments that currently support the services being delivered are examined.
- The current processes are juxtaposed against the service objectives to identify opportunities for improvement.
- Based on priorities, these are then developed into business process and electronic transaction prototypes.
- Re-engineering tools are applied to develop prototypes that are customer focused, cross-functional and efficient.

A prototype is created to showcase the new processes and technology-enabled solutions. This prototype could be purely conceptual in nature (e.g. architecture) or could have elements that can be demonstrated (e.g. Web-enabled transactions). The point is to communicate to the Municipality stakeholders, and to your citizens, the ‘workability’ of the proposed solutions. This ‘proof of concept’ improves your understanding of the proposed solutions allows for modifications prior to implementation, and provides a decision point for going forward with implementation.

Key Concepts:

Create prototype to demonstrate feasibility.

Notes:

Key Concepts:

Form an implementation team.

Notes:

Understand current technology infrastructure: be prepared to use it in new ways.

Step 4 – Making it Reality

- Implementation of new processes, architecture and electronic solutions

During **implementation**, representatives from all of the impacted organizational groups and Municipalities form an Implementation Project Team. Empowered representatives from the IT provider and/or external service provider, departments, human resources, customer-facing front office personnel, back office personnel, corporate communications, management, other levels of government and citizen groups may all be involved. Changing the way your organization delivers services to your citizens has far reaching impacts, both internally and externally. Implementation is a collaborative effort, and all impacted groups need representation and a mandate to execute the new processes successfully.

In fact, implementation may be considered a project onto itself. There are many activities, such as:

- Realign organization
- Create and conduct a training session on new process(es)
- Create support program for processes, application, interfaces as required
- Test on-line services with front-line users and citizens
- Test automation and connection to back-office processes
- Test integrated redesigned processes – staff, on-line, front to back office automation
- Make it Reality - Go Live!

APPENDIX 10: Technology Infrastructure

It is inevitable that some amount of updating with respect to tools and technologies will be required as Municipalities move toward e-Government. This does not necessarily demand the acquisition and implementation of new tools and technologies. However, it will likely require using the existing infrastructure in new ways. Accordingly, the organization will need to understand the current technological capability in order to identify what needs to be addressed to achieve its vision for the future. This work results in the development of an architecture and strategy focused on electronic service delivery (ESD).

Assessing the Municipality's current and planned technology status requires the following activities to be conducted.

a. Review Current Technology

- ☐ Inventory of Computer Hardware / Software
- ☐ Inventory of Communications Network Hardware
- ☐ Assess Security Architecture
- ☐ Assess Standards & Guidelines
- ☐ Assess Inventory of Business Systems
- ☐ Assess Inventory of Data Stores
- ☐ Identify existing Interfaces (User, Enterprise and Data Base)
- ☐ Inventory Physical Facilities, Organizational Structure, Staff
- ☐ Review IT Budgets, Plans and Current activities

Key Concepts:

Develop architecture that enables achievement of service delivery objectives.

Notes:

Notes:

b. Review Business Strategy and Planned IT Infrastructure

c. Identify Major Issues, Constraints, and Risks

An ESD capability assessment incorporating these main areas of focus provides a Municipality with an understanding of its current technological capability to deliver services electronically. This assessment is provided as input to producing a target architecture and e-Government strategy.

APPENDIX 11: ESD Architecture and Strategy

Notes:

In this activity, the goal is to develop the target architecture that will enable the Municipality to achieve its service delivery objectives as described in the business strategy, and in business and technical requirements gathering activities. As well, alternative strategies for achieving that architecture and recommendations for selection are noted. The following activities are performed:

- ❑ **Define Future Technology Environment & Infrastructure Requirements**

Review Business and IT Strategic Plans. Interpret the findings of the business analyst's efforts - highlighting those business requirements that affect infrastructure design decisions and recording how identified requirements impact technology.

- ❑ **Assess Infrastructure Standards & Guidelines**

Identify and understand any standards related to technology, which must be adhered to within the service delivery project initiative. Capture and understand any constraints or guidelines imposed on the technology team when designing proposed infrastructure solutions.

- ❑ **Assess Infrastructure**

Understand the existing technical infrastructure – software, hardware, interfaces, facilities management, operations management procedures, resource responsibilities, standards, security, etc.

Notes:

❑ Assess Ongoing and Planned Infrastructure Initiatives

Research, identify and understand other ongoing, related initiatives within your organization. Where appropriate, alignment with another initiative may occur, justifying the establishment of a consolidated solution better accommodating both initiatives.

❑ Define Target Environment

Establish an early view of the proposed or target infrastructure at a high-level by assessing the information gathered around the factors influencing infrastructure design.

❑ Perform Reusability Assessment

Determine those processes in an existing infrastructure that are candidates for reuse in the new, proposed infrastructure.

❑ Gap Analysis

Identify all aspects of the proposed architecture that will be new or changed as a result of this project initiative, and cannot be addressed through reuse of objects in the existing architecture.

❑ Risk Assessment

Identify and communicate risks associated with the proposed architecture and recommend approaches for addressing identified risks.

❑ Identify Alternatives

Identify the implementation options that may be considered in deciding how the future technology environment may be achieved.

❑ Develop Recommendations

Recommend an approach to achieving the target architecture from among the identified alternatives.

APPENDIX 12: Portal Development

Notes:

Portal Development

You are now ready to develop your Web presence. Among other things, you have:

- ☐ Documented business objectives for developing your portal and the services and information offered on that portal
- ☐ Identified potential improvements to business processes
- ☐ Packaged services from the citizen's perspective
- ☐ Identified the target citizen/customer groups and their requirements
- ☐ Assessed your electronic service delivery capability
- ☐ Developed a target technical architecture
- ☐ Established an infrastructure prototype to build transactions ready for deployment on your portal

1. First things first.

There are some requirements or issues (listed below) that you will want to address prior to developing your portal. These issues may require attention prior to actual selection of Web portal tools as they may impact the selection process itself. Giga Information Group advises that it may be smart to deal with these issues first.¹ And, as well as attending to these issues, realize that regardless of the available functionality of the portal, the portal itself cannot address the quality of the underlying content and services that will be exposed.

¹ Giga Information Group, Don't Rush Enterprise Portal Decisions, IdeaByte RIB-102000-00197, Kathleen Hall, October 23, 2000

Issue	Requirements to be determined
Determine user management issues	What privileges are assigned to a user. What content a user can access. What will the roles be for content providers and content receivers. What are the variations amongst these groups.
Identify integration, aggregation and accessibility issues.	What content, data and services that must be integrated, aggregated and accessed. What are integration points between portal and other solutions, e.g. directory services.
Determine front-end features.	What front-end features are required, for example, personalization and collaboration.
Determine portal ownership	Who will own each portal and be responsible for deciding what the portal will contain and how it is structured? With multiple portals, what group will ensure consistent presentation, effective management and operations?
Determine Content and Data Issues	What data and content can be presented? What implication does privacy legislation have on the content and data? Have the content and data been validated for accuracy and timeliness? Who would perform the validation, initially and ongoing?

Development of your portal can now begin.

2. Checklist of things to consider when developing your portal.

1. Define / understand your goals for creating a Web presence
 - a. Difference between government e-commerce and private e-commerce

Notes:

2. Look and Feel
 - a. Includes colors, graphics, layout, typeface, navigation tools
 - b. KISS principle, appealing and recognizable
 - c. Understanding the broad audience you are building for
 - d. General ease of use, placement of images and media
 - e. Readability of content
 - f. Are there any defined standards for Look & Feel, accessibility within the government that must be considered
3. Structure of site / navigation
 - a. Don't necessarily structure by hierarchy, but provide a site map with this type of navigation
 - b. Structure by Services offered
 - c. Smooth logical navigation, clear organization
 - d. Levels of information (keep it to 3 levels)
 - e. Search functionality – format to provide this is (search across different content sources – db, text files, etc)
 - f. Links to other sources/sites
 - g. Registering with Search engines – choosing key terms and phrases to represent your site
4. Define the information / services you currently have
 - a. Decide which must be provided on-line in some format
 - b. Offer content (information and services) that are of interest and consequence to the user, consider Copyright issues
 - c. Consider how often it needs to be updated, who maintains the information and what is their technical knowledge (from using Office, Internet to Web dev tools)
 - d. Approval process for placing information (new, updated, deleted) on the Web (Champions)
 - e. Consider a phased-approach to creating a Web presence
 - i. Prioritize the services and information to provide on-line
 - ii. Provide them in an organized, planned deployment
 - f. Contacting you directly
 - i. Providing good contact information
 - ii. CRM (Citizen Relationship Management)

Key Concepts:

Make the portal appealing.

Notes:**g. Security Considerations**

- i. Authentication – How do you verify a person is who they say who they say they are? This is particularly important when sharing personal information such as registrations of birth, marriages or displaying financial information such as balances left on an account. One way is to identify “shared secrets” between the citizen and the Municipality.

5. Technology

- a. Choose a development technology
 - i. Time to market
 - ii. RAD (Rapid Application Development)
 - iii. Budget
- b. Identify internal resources (Project Manager, etc) and their level of experience
 - i. Retaining a Webmaster
 - ii. Identifying resource required to keep information on the site updated
- c. Identify requirements for outside resources (consultants)
 - i. Define roles and responsibilities
- d. Choose a consulting partner
 - i. Level of experience with technology
 - ii. Project Management knowledge/expertise
 - iii. Resources available
 - iv. Knowledge of government programs and services
 - v. Rates
 - vi. Reference of similar scope and size
- e. Identify Budget
 - i. Software and development tools
 - ii. Security software
 - iii. Licensing issues
 - iv. Contractors
 - v. Webmaster

6. Promoting your new site**3. Developing your Portal - Overview**

In developing a Web-portal presence, the factors to consider include:

- ☐ Look and feel/ Branding

Defining the look and feel for the portal is an important process in portal development. The portal must be appealing and recognizable, easy to use

and have content that is readable by a broad audience. Look and Feel includes the consideration of colors, layout, typeface, and navigation tools as well as the placement of images and media. It is important to identify early if there are any current standards for look and feel and in particular accessibility. Standards are important to define so that users can be ensured access to the services and information on-line.

□ Navigation/Structure of site

Navigation is a primary issue in portal development that is part of defining the look and feel of the site. The portal must have a smooth logical navigation and clear organization. It is important not to define a navigation structure necessarily by the government hierarchy, but to consider a structure aligned to the services and information offered on-line. Navigation levels should be kept to a reasonable level and search facilities need to be considered that expand different content available on the site (databases, documents, etc...). Personalization and links to other sites are also considered at this time.

□ Information and services definition

Deciding what information and services to provide within the portal and to what level of functionality is the primary requirement for Portal Development. Consider content that is of interest and consequence to the audience keeping in mind that not all information and services translate to an on-line format easily. Prioritize and provide services and information in an organized, planned deployment process.

Some of the services defined will be e-commerce services. Some of the requirements to identify are:

Key Concepts:

Smooth navigation
clear organization
material.

Make content
interesting and of
consequence to
customers.

Keep security top o
mind.

Notes:

Key Concepts:

Reliability and availability are important.

Notes:

- Shopping sales cycle
- Payment processing
- Posting to legacies
- Reporting

As the information and services are identified, document the administration requirements of this content. Consider how often it needs to be updated, who is responsible for keeping it updated, content expiration rules and approval processes. Furthermore, identify where and when notification of expiring content rules and processes is required.

□ Security Issues

The services provided on-line will help identify the security requirements for the portal. How the information and services are provided, personalization and registration capabilities and content administration processes must be considered and defined. Security issues also extend to the technology used and where the Web portal resides in relation to any back-end systems accessed by the on-line services.

□ Technology requirements

Building a portal that is highly reliable (availability, downtime), is scalable (easily supports a growing number of users) and is secure is vital. Choosing a development technology that supports these concerns must be considered in relation to the content provided.

Consider the time to market required, the budget identified for

software, hardware, internal and external development and support resources. Look for a consulting partner with a high level of experience and knowledge of government programs and services.

4. Developing your Portal - Detailed

For the purpose of customer-facing interactions, **Web content management** solutions would be focused in the areas of Web-site content and e-Government transactional content.

Guidelines to consider in developing your Web presence are:

□ Look and Feel

To be consistent each page contains these components:

1.	Logo	Contains whatever Logo the Municipality wishes to show on its portal.
2.	Session Links Log	This displays the list of links that has taken the user to a particular point. The user can use this Links Log to link back to any point in the list.
3.	List of links	This contains a dynamically created list of links. The links that will show are dependent upon whether the user is anonymous, has been identified as a member of a group or has loaded their personal profile.
4.	Portal Logo (Header)	One of the methods that each portal can use to give it an independent look and feel. In this space the portal/page/department can put its

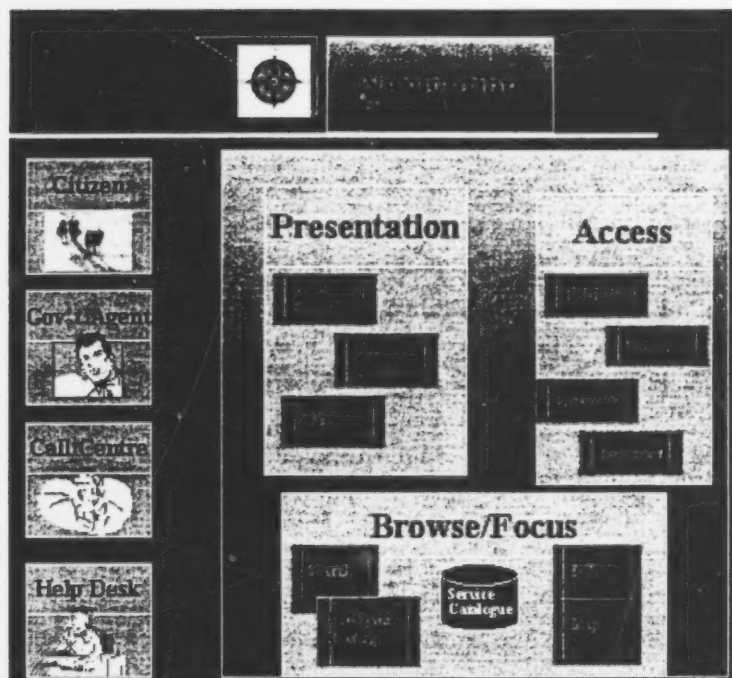
		own logo or header.
5.	Group Buttons	One of the ways for a user to identify themselves and thus limit the number of links that show. A user would click a group to bring up a template indicating the services that are used by that group. For example an individual that does not want to fill out a personal profile can click on the "Individual" group to bring up the template of the list of links normally used by an individual.
6.	Personal Profile Button	A person that wishes to may fill out a personal profile that will allow the list of links to be customized to show only those that are of importance to that user.
7.	Chat Button	A button that will load a chat in the content frame or a list of chats in the list of links. (Future)
8.	Content Space	The frame in which all the portal content will be contained and displayed to the user. This is another component that will be customizable by the portal management tool that will enable the portals to have an independent look and feel.
9.	Search Element	The component that will allow word and theme searches to be performed.
10	Footer	Component that will allow the Municipality to display information at the bottom of each portal. One idea may be to run banner ads of upcoming events at the bottom of each portal.

There are also tools that help with 'Look and Feel', such as:

- A **design template** lets your internal Web administrators put text or graphics onto a blank form. The template automatically "marks up" the content according to pre-defined rules. This gives a common look and feel to the site and enables the separation of form and content — a key concept for allowing easy content reuse.
- **Dynamic content** means that content is continually refreshed to provide new or updated information to attract new viewers, and to keep viewers returning to the Web site.
- **Personalization** of content is the tailoring of information for a particular site visitor or category of visitors. It can range from general profiling based on business rules to targeting specific components on the page based on user behaviour or demographics.
- **Consistent Design.** Content design can be addressed using tools that are specifically designed to ensure uniformity in format, style, layout, etc. Content may also be addressed through the definition and adoption of standards throughout the municipal government departmental units. Uniformity and consistency on content (form and style) is 'automatically' assured in every instance.

Notes:

□ **Navigation/Structure of site**



Determine architecture requirements to present, fulfil and deliver various services.

○ **Logical Steps**

The Portal structure can be designed to represent logical steps to the users (customer-facing personnel, citizen, etc.), but each of these steps would accommodate the data gathering, transformation and 'linkage' needs to either external systems (i.e. Payment validation services), internal systems (i.e. Registry applications), or to other components to forward this data to the appropriate down-stream business processes.

- **Clean visual appearance**

Provide a clean and uncluttered technical and visual appearance that allows for predictable navigation by a Web site customer.

By having a consistent template embedded into the Content Manager tool and by defining certain styles that are to be followed it can be assured that the portals will have an uncluttered and pleasant look and feel for the user.

- **Web site map**

Include a Web site map. Many styles of Web site mapping are possible and your IT provider will provide you with various options to choose from.

- **Information and Services definition**

For Service Definition, see *ESD Fast Track to Electronic Service Delivery*.

For Information content, there are many aspects to consider. A few are listed below:

- **Mobility** is the movement of content between back-end systems as well as between trading partners.
- **Portability** refers to the formatting of content so that it can be transported and processed easily by receiving applications.

Key Concepts:

Standard security mechanisms: part of Web architecture.

Notes:

Notes:

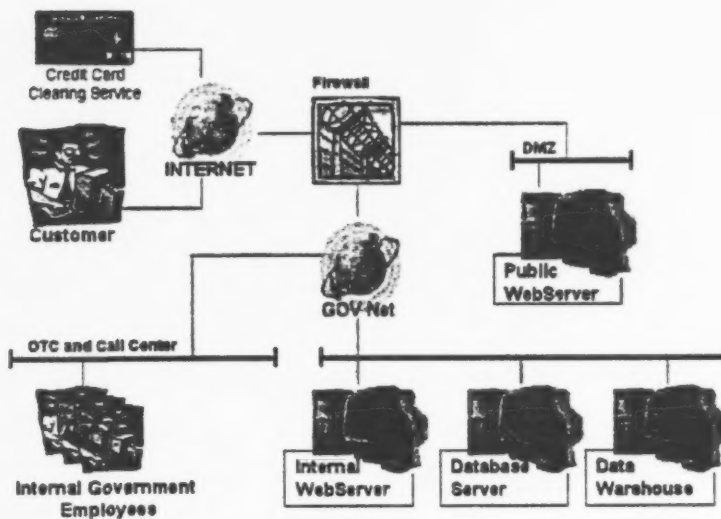
- **Publishing** system must be able to render and present content for each targeted channel, being aware of the capabilities of each channel. This means that if you have a call center, you may want your call center staff to see more or different information than those accessing the Web external to your organization.
- Allow portal front-ends to be **loosely coupled with back-end systems**, processes and other Web enabled functions and sites, e.g. interfaces to new and legacy systems across multiple computing environments, whereby changes in the front or back-end will not affect the other.
- Consider **linking** organization-wide content and document management, for structured and unstructured information, and linked with Municipality's document and records management tools, where this possible.
- Portal is capable of **accepting "plug in"** Web software modules to support extensible functionality such as survey forms, payment infrastructures, etc.
- **Forms creation** should be a core function of the Web software. **Payment taking** and movement of the resulting data becomes part of the core functional modules of the architecture.

□ Security Issues

Notes:

Each Municipality, regardless of size, needs to describe its portal and content management security needs for interactions, transactions, and financial transactions, in relation to confidentiality, integrity, and availability.

A typical environment would look like the illustration below. In the illustration, the public enters the Portal via the Internet to a Web Server in the DMZ (De-militarized Zone). Access via this method is anonymous, and the user is not challenged to authenticate. All users coming in via this access point can see only those products, services and departments that have been designated as 'public'.



Your Web architecture should contain standard security mechanisms and a firewall environment. Internal government employees access the site via the internal Web Server. All

Notes:

access to this server requires authentication. This can be via Microsoft authentication based on the users logon to the LAN, or it can be a basic HTTP authentication. The user is then shown the specific products, services and departments that are attached to the individual and personal profiles that they are permitted to define and use. Additional authentication is possible through the use of certificates although care must be taken when incorporating this feature given that certificates can be explicitly browser-dependent.

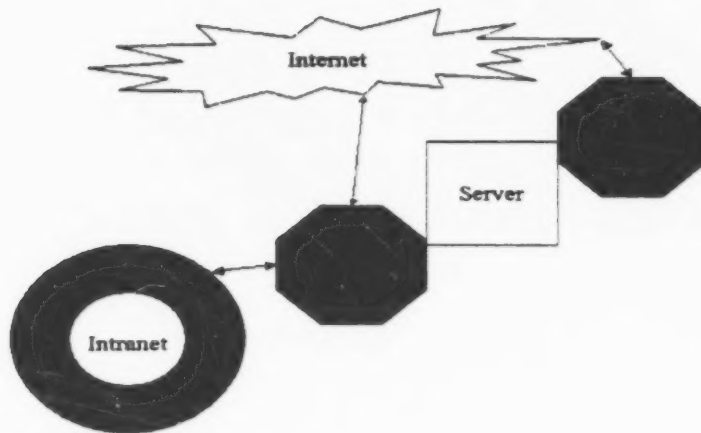
Note that all users may share access to the same Database server (and data), but the behaviour of Web software application changes depending on each user's permissions.

There are a number of methods available to ensure the security and the method used will be dependent upon the type of transaction and the parties involved.

It is recommended that the security scheme for each transaction would have to be decided upon on a transaction-by-transaction basis. The one clear necessity is that the various servers should reside behind at least one firewall, and a configuration of double firewalls is steadily becoming a popular option.

The first firewall prevents an intruder from hacking into the server. In the event that someone should succeed in hacking into a server, the second firewall prevents the intruder from gaining access to the remainder of the network. This is sometimes referred to as a DMZ (De-Militarized Zone) configuration and is shown in the diagram below.

Notes:



It is sometimes difficult to convince a user (citizen) that a Web enabled transaction is secure; sometimes there must be a certain amount of a “trust me” relationship. In dealing with government it is generally easier for the user to acknowledge that trust relationship because if something goes wrong they know “where to find you”. Frequently the addition of a notice on the Web site stating that it is secure is enough information. Conversely, by providing too much insight into the security methodology, the user may become a potential hacker to the site. It is often best to keep security schemes on a “need to know” basis and rely upon the “trust me” factor from the user community.

Notes:

□ **Technology Requirements**

Pure Play portal products are typically more off the shelf and they work well with standard data types and with common applications. They can be a good choice for intranets or simple extranet portals. They typically offer built-in features for personalization, full-text search, automatic categorization, collaboration and the ability to integrate functionality from common applications within the enterprise.

An **infrastructure** portal makes it easier for an application to access platform services for integration, workflow, transactions and other complex services. Giga defines comprehensive components of an infrastructure portal as:

- A transaction engine
- Facilities for application integration
- Metadata definition and management
- Content Management and personalization
- Information broadcast / notification
- Query, reporting and other business intelligence integration
- Workflow, business-process integration and collaboration facilities
- Security²

² Giga Information Group, Enterprise Portals: What Defines Portal Infrastructure?, Ideabyte RIB-062000-00244, Mike Gilpin, June 26, 2000

Summary – Portal Development

To effectively establish and evolve a presence on the Web, a Municipality's portal will allow citizens to conduct the types of activities that they would be able to do at a counter with a Service Representative. This will encourage citizens to acknowledge the Web presence as a channel for interacting with the Municipality. To provide the ability for citizens to conduct such tasks as paying water bills, registering their children for swimming lessons, applying for a burn permit, etc. and to allow the Municipality to effectively manage these activities, the Municipality's citizen-facing presence on the Web will include content and portal solutions. The shape of those solutions is what the Municipality needs to discover, depending on business objectives and requirements.

Notes:



Section 6.5

Benchmarking

INTRODUCTION

In the past decade the terms "Benchmarking" and "Best Practices" have been used almost synonymously as they have become part of the language and culture for both private and public organizations. For many organizations, benchmarking and best practices have become a cornerstone of their success, which in turn has created even greater interest in these processes.

The simple definition of the term benchmarking is a standard of performance. That standard may be one established by the municipality as a goal to aspire to, or the standard may be one established by looking at other municipalities to see how they are performing in a specific area.

Demystifying the concept

There is no great mystery to benchmarking or best practices. It is a simple concept that has been used since the beginning of time for those individuals who strive to improve and become the best in their field.

Picture if you will a caveman crouched at the riverside scooping up handfuls of water to drink because he has a long day of hunting ahead of him and he knows he will get thirsty. Our caveman looks up and notices that one of his companions has made a cup out of an animal's horn to carry water for the hunting trip. He's found a way to bring the river water with him to use later in the day. Our caveman considers the benefits of such a handy device when he notices that another one of his companions has fashioned a pouch of animal skins and he's filling it with water and tying it to his waist. This is benchmarking in it's simplest terms, looking at how others are doing the same task. When our caveman considers the alternatives and decides that the skin pouch is the better of the two options because the water is less apt to spill, and it's easier to carry, then he is deciding which of the two methods for carrying water is the "best practice".

This combination of benchmarking and best practices is a process we can use to our advantage in just about every aspect of our daily lives. It is a process that we use all the time, but we have probably never considered what it was called before.

Benchmarking for municipalities is the same basic idea. It is the continuous process of identifying, adapting and implementing the practices and processes that can result in improved performance. It is a learning process primarily, that involves measuring the gaps, first between your municipality and the best performing municipality, and second, between current performance and previous performance.

Quite simply, benchmarking involves the process of:

- examining how we do certain things,
- examining how other people do those things;
- review each process,
- take mental notes on how they do it,
- compare it to the way we do it or others do it,
- determine which way we think would be the best way (best practice) of doing it for ourselves,
- implementing the best practice for ourselves, and
- once implemented, begin the whole review process again.

WHAT DOES BENCHMARKING DO?

What can a municipality hope to accomplish by establishing a benchmarking process? Benchmarking enables a municipality to define what it could accomplish, set goals, and develop a realistic plan for achieving those goals.

**What can
Benchmarking do
for you?**

- **Connect goals to results:** Benchmarking can enable a community to develop measurable outcome indicators relating to each specific municipal department or function, and identify the section responsible for each goal. The process helps develop clearly defined long term goals for each section, and provides a mechanism for attaining those goals.
- **Build an inventory of Municipal Data:** Information is key to improving performance. Benchmarking enables an organization to gather relevant data, identify areas where data is currently unavailable or incomplete, and develop procedures for acquiring the desired data
- **Use the data to achieve goals:** Making use of the data collected in the process of benchmarking enables municipal governments to assess the progress they are making towards

accomplishing tasks, and achieving their goals.

For private and public sector organizations benchmarking focuses on how to improve any given business process by exploiting a "best practice" rather than merely measuring the best performance. It is this exploitation of best practices that result in the best performance. Studying best practices provides the greatest opportunity for gaining a strategic, operational and financial advantage.

It is an example of a continuous improvement tool that can:

- Provide meaningful performance information;
- Improve strategic planning and provide an assessment of the organization's strengths and weaknesses;
- Establish challenging performance goals and stimulate better financial management;
- Foster implementation of best practices and lead to increased efficiency in the use of resources; and
- It promotes the emergence and evolution of a "learning culture" throughout the organization, a key to continuous improvement, total quality and competitiveness over the long term

As noted, benchmarking is linked very closely to strategic planning, as it provides the long-term focus of the organization to become the best in their class. It also provides the action plans for implementing the results of the study to achieve the strategic goals.

For further information on Strategic Planning and its value to your organization, please refer to Section 6.1 of this document.

There is an extensive body of research and literature on benchmarking, while the literature is varied, and at times specific to a particular situation, there are elements that are applicable to most situations. Rather than recreating an extensive review on benchmarking, the purpose of this guide is to present an overview on benchmarking, its benefits, procedures, methodologies and direction for further study.

WHY SHOULD MUNICIPALITIES BE CONCERNED?

In the private sector, the bottom line of profits and losses, market share, growth potential etc. are the driving forces for the private sector to incorporate the benchmarking process as part of their ongoing

business culture. The rationale for the private sector, is therefore quite straight forward, it is a matter of survival.

For municipalities, the rationale for including the benchmarking process are a little different, but never the less, just as important. Although municipalities do not have the concern of competition, there is an electorate and politicians who have an expectation of quality service while maintaining a reasonable tax rate. Therefore, benchmarking becomes an invaluable tool for municipalities to enable them to do more with less when they incorporate the best practice throughout their municipality. There is a growing realization that increasing taxes is not a viable option. Increased grants from upper levels of government to municipalities is not a likely event in the foreseeable future. The argument that one does not have the time or resources to deal with benchmarking is akin to a lumberjack facing a large stack of wood to cut saying that he has too much wood to cut to take the time to sharpen his dull saw blade.

TYPES OF BENCHMARKING FOR MUNICIPALITIES

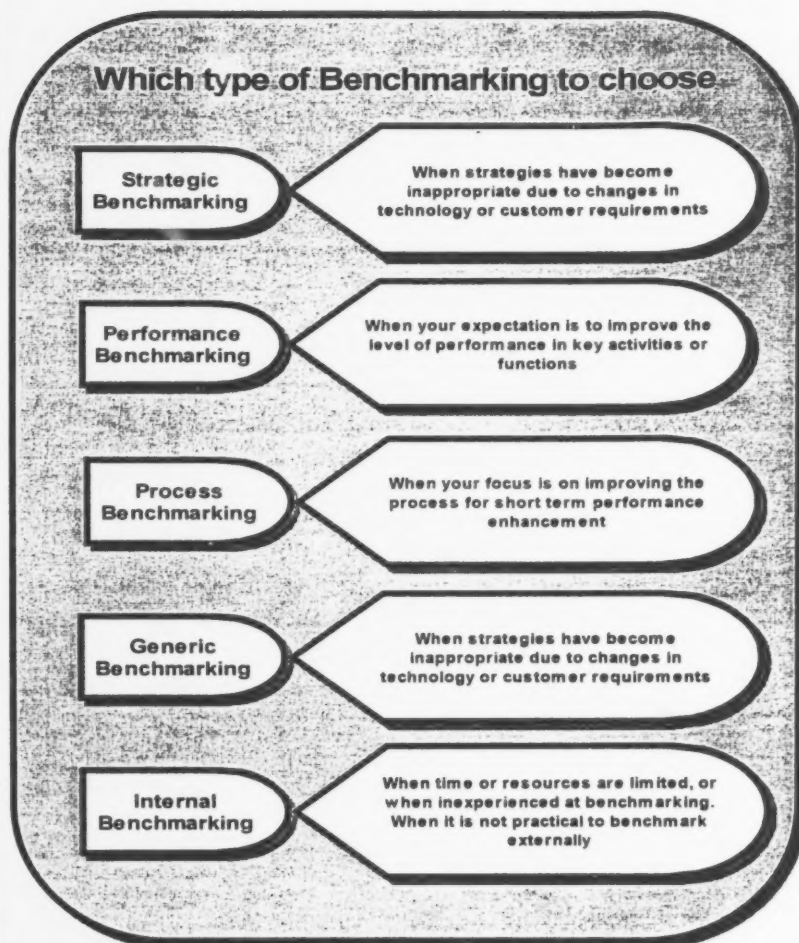
There are a wide variety of types of Benchmarking identified in the literature, however, for the purposes of this discussion the following types are suggested:

- **Internal Benchmarking** compares performance and practices within your organization between different departments. This is the least expensive and time consuming for a municipality as it involves data and information available within the municipal organization. One advantage of this type of benchmarking is the ease with which you can access the data therefore requiring fewer resources. The disadvantage of this type of benchmarking is that the possibility of learning new methods is limited. Viewing how customer service is provided in the various functional areas of the municipality, including over the counter service, telephone service, electronic service to the public, private industry, other government agencies and the other departments of the municipality is an example of Internal Benchmarking.
- **Process Benchmarking** compares the process or how things are done to achieve an end product. It seeks the best practice for conducting a particular business process, which is

What does it all mean?

considered to be the best in the field. Once the best practice is identified and understood it may then be adapted and improved for application in another organization.

- **Performance Benchmarking** compares the performance or how well the process is done. Generally, performance benchmarking compares a number of indicators. These could measure the performance of just one process, but usually this type of benchmarking covers a wider range of the organization's processes.
- **Sector Benchmarking** involves making comparisons with organizations in the same industry. This form of benchmarking is particularly relevant for municipalities as it allows local governments to network to determine what is working well in other localities and adopt best practices for their own units. For the municipal sector, Australia and England lead the way for municipal benchmarking information.
- **Generic Benchmarking**, or "best in class" benchmarking compares practices that are independent of the industry. This type of benchmarking has been identified as the one which can result in a paradigm shift leading to innovation and creativity in the function or process. A good example of this would be the application of bar-coding, which use ranges from product identification to tracking shipments of material or billing.
- **Strategic Benchmarking**, which looks at the organization, identifies the long term strategies, and the needs served. Finally, strategic benchmarking identifies the resources and the skills required to fulfill those needs. This may involve consideration of core competencies, and skills development. This type of benchmarking can be most relevant combined with a review of the mission and mandate of an organization.
- **Informal Benchmarking** is the practice of comparing our performance with the performance of other organizations similar to our own. This type of benchmarking has been carried on through attending workshops, conferences and other activities where there is an opportunity to compare one organization with others of a similar nature. This can be useful but will not be effective for developing strategies for improvement.



WHICH TYPE SHOULD YOU USE?

Deciding which type is right for your municipality

Before you can decide which type of benchmarking is most appropriate for your situation, it is important to be very clear about what you expect to achieve by the process. Consideration should be given to the time available, the resources required, the level of experience as well as the benchmarking partner you have selected.

Circumstances will dictate which type of benchmarking is most appropriate for a particular situation.

The PSBS (Public Sector Benchmarking Service) in London England provides valuable information on benchmarking for the public sector on their website www.benchmarking.gov.uk.

KEY FACTORS TO BENCHMARKING SUCCESS

Drawing from the experiences of others who have gone through the benchmarking process, there are a number of factors which can contribute to a successful benchmarking experience for your municipality. These key factors include:

- Careful planning and resourcing from the beginning,
- Committed support from management and cooperation from staff at all levels,
- Setting clearly defined objectives,
- Focusing on the issues that are important to your organization,
- Identifying appropriate partners,
- Thorough understanding of the processes under review and of the process of benchmarking as well,
- Clearly defined measures for comparison,
- Understanding the reasons why performance varies,
- A willingness and commitment to change,
- Strong lines of communication throughout the organization.

Once a benchmarking project gets underway, it may take several months before actual improvements may be achieved. For this reason, a strong commitment to the process is vital to a successful endeavour. The process itself can be demanding on staff and require a good deal of energy, time and commitment. It is crucial for the benchmarking team to have sufficient time to devote to the work in order to gain a complete understanding of how and why performance differs, and further, it is important for the organization to permit staff sufficient time for learning new ways of doing things.

THE BENCHMARKING TEAM

Building a team

The team that will be undertaking the benchmarking project should be formed as early in the process as possible in order to be actively involved in the planning stages. Normally the benchmarking team would be comprised of municipal staff however, there may be times when it may be more beneficial to bring in an outside consultant. When should you bring in an external consultant?

Where do you begin?

When -

- you need a fresh perspective,
- you lack experience or expertise in-house,
- time restraints prevent in-house personnel from completing a project before a deadline.

Process analysis skills are probably the most important skill required of the benchmarking team. Understanding each process is critical to a successful endeavour. In addition, team members should be skilled communicators and team builders.

WHAT SHOULD BE BENCHMARKED?

The rationale for doing a benchmarking process is that the municipality may have identified a problem area or there is a strategic change in initiatives. The municipality may have become aware that another organization has been able to do a particular activity better or more efficiently, or perhaps the municipality has made a commitment to continuous improvement. There are no rules as to what is the best thing to benchmark, rather there are a number of factors to consider, for example, what are your resources for doing the study, what is the time line, and what would other organizations be willing to reveal.

To begin the benchmarking process for any organization, select an item or process which is easily definable, measurable, evaluated and can result in achievable results, then build on your successes. As people see the value of this work, they will be more willing to become involved and the organization can move to more complex processes.

Benchmarking can be a time consuming and expensive process and therefore clear objectives should be set out in advance. Some areas to focus on include:

What to benchmark

- **Product delivery:** Are there ways of providing the goods and services that will be more cost effective or less labour intensive.
- **Work processes:** A work process can be defined as a function that enables a municipality to successfully deliver its services to the community.
- **Support functions:** Work processes not associated directly with providing municipal services. (Such as financial services or human resources).
- **Performance indicators:** How satisfied are the residents of your community in the operation of your organization? Are there ways of improving quality of services, reducing response times, or making the community a better place to live.
- **Strategic Planning:** Does your municipality have a business plan? Does your Council plan for the immediate, mid and long term, or

react to situations as they arise?

Because of the cost and commitment involved in benchmarking, it is essential that the areas chosen to be benchmarked should be carefully selected. Activities to be benchmarked must be clearly defined in order to maintain focus. Areas selected to be benchmarked should be important not only to those who will ultimately be using the service, but should also fit in with the goals and business plan of the municipal organization.

The Audit Commission in the UK offers some helpful advice on carrying out a successful benchmarking project in the management paper *"Getting Better all the Time: Making Benchmarking Work"*. This paper is available online and the web address is included in the bibliographic section at the end of this paper.

WHO IS TO BE BENCHMARKED?

Identifying the appropriate target as a benchmarking partner, can be the most difficult aspect of the benchmarking process. The key depends on what type of benchmarking is to occur: internal, process, performance, strategic, generic or sector benchmarking. The answer to this, will to a large degree determine which organization will be surveyed. It also has to be recognized that some of the best organizations have been inundated with requests for benchmarking studies and are therefore less likely to want to participate.

Another thing to keep in mind is to not limit your view of potential organizations to study. For example, if your goal is to improve your over the counter and telephone customer service you may wish to look beyond the public sector and look at what banks or fast food services are doing.

THE FIVE STEPS OF BENCHMARKING

In the literature there are a variety of steps to benchmarking, however, they follow a similar pattern, some are just a little more detailed than others. The common point in all the models is that benchmarking is a continuous learning process, and a process which is never ending, if continuous improvement is the desired result.

The Strategis Canada website offers a wealth of information on benchmarking and benchmarking tools including a ten step process.

For the purposes of this review, the simple version will suffice and it is illustrated in the following chart.

The steps in the process

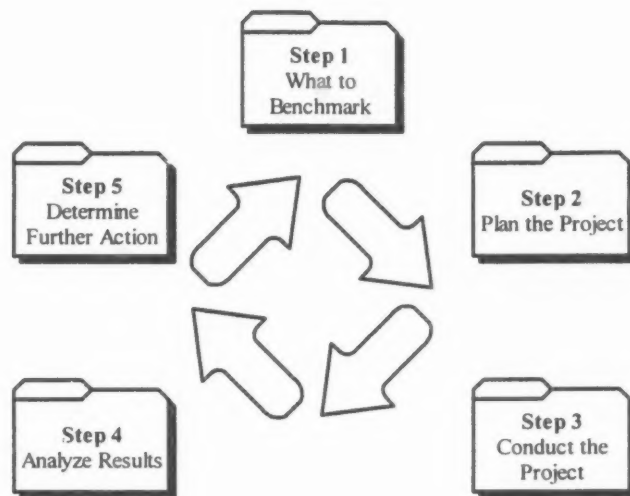
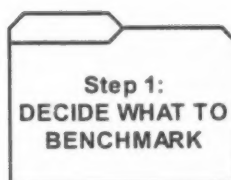


Chart 1:

Benchmarking Process

STEP 1: DECIDE WHAT TO BENCHMARK



- **Select benchmarking team**
Involve staff who are involved in delivering the service you are benchmarking. The team ideally would also include a staff member from support services / finance to help in estimating costs, and someone with training in research who has knowledge of conducting surveys and analyzing processes.
- **Make the initial Choice**
It is important to spend time deciding which process or performance you wish to benchmark. For the first time out, keep it simple, measurable and achievable.
- **Refine Choice**
Focus and refine your initial choice to identify aspects of the practice you want to benchmark. How does it relate to the final goal you may wish to achieve and is it something that is measurable or identifiable in other organizations?
- **Define objectives**
Have a clear idea of what it is you want to accomplish, which processes you want to improve, and what goals you want to achieve.

- **Identify the participants**

Every process involves particular staff members. Identify all those involved in the process you have chosen to benchmark. Bring your staff onside by communicating clearly what it is you are doing and how you plan to accomplish your goals. Having your work reviewed in such detail can seem threatening to some people so keep relevant staff informed about the project. By keeping clear and open lines of communication you will encourage cooperation and participation. Allow feedback from the staff members involved because they may have valuable suggestions for improving the process.

Output of Step 1:

- Project plan,
- Communications plan,
- Presentation to management and senior staff.

STEP 2: PLAN PROJECT

- **Analyze current procedures**

Take a careful look at your organization to determine which aspects are in most need of improvement. Focus your attentions on one area at a time. Select processes where you can achieve some initial successes to build confidence and a sense of teamwork. These early successes will provide valuable experience for when you need to tackle the more complicated processes later on.

Such detailed analysis may reveal areas where improvements can be made before looking to outside organizations for comparison. In order for the benchmarking process to have an optimum effect on an organization, staff at all levels should be involved in the process. Allowing staff to have a sense of ownership over their individual responsibilities enables them to understand how their role impacts the overall performance of the organization as a whole. At the same time, management needs to be sensitive to the risk of demoralizing staff when comparing their performance with similar services in another community. Exercise caution to avoid a tendency to place blame and cause a defensive response instead of a learning comparison.

- **Choose Partners**

If you are doing internal or process benchmarking, the



partners you choose will be the people involved in the particular process under review. If you select external benchmarking, decide who to benchmark with and why. While it may be beneficial to benchmark with a similar municipal government, it is advisable to not limit your focus to a narrow view of the types of organizations or businesses to survey. Perhaps you are already aware of another municipal organization that is doing an exceptional job of some aspect of municipal government, then that municipality would be the ideal choice for a benchmarking project.

- **Plan Comparisons**

Select the most effective way of comparing your performance or process with that of your benchmarking partners. It is important not to "jump the gun" and go off to visit your benchmarking partner before you have done a thorough job of studying the processes under review and have a clear understanding of how your organization carries out those processes. You will need to have your process mapping completed prior to visiting with your benchmarking partner so that you can effectively compare the way your organizations carry out the same processes.

- **Manage the Project**

Manage the project so that it is completed on time and within budget. This type of project can grow to the point where it becomes completely unmanageable so it is vital to keep focused on the particular processes that you have identified in step one.

Output of Step 2:

- Identification of processes and functions to be benchmarked,
- Schedule of visits with benchmarking partner,
- List of questions and topics to discuss with benchmarking partner,
- Presentation to management and senior staff.

STEP 3: CONDUCT PROJECT

- **Gather Data**

The approach to data analysis should be consistent across all participating organizations. Gathering data involves careful analysis of each process and all the steps involved in each process. Take it one at a time and construct a detailed process map for each process being benchmarked. Use

**Step 3:
CONDUCT
PROJECT**

business tools such as process mapping and flow charts in order to examine each practice to analyze and identify each individual phase of the process. *Appendix A1 provides details on how to construct a flow chart and process map.*

- **Review the Data**
Do a walk through of the flowchart and process map. It is a common pitfall when process mapping to show the process as it should be done rather than how it actually is done. Doing a walk through examination involves watching the process as it is carried out. This requires sensitivity and patience as people being observed tend to be apprehensive about being watched. Reassure them that you are not finding fault with the way they are doing things, rather you are studying the process itself.
- **Analyze Data**
Ensure that the quality and quantity of information being gathered meets the requirements to allow for a successful outcome.
- **Produce Report**
The report must provide clear comparisons, easily understood by people from each partner organization.

Output of step 3

- Process maps,
- Flowcharts,
- Database of findings,
- Written report,
- Presentation to management and senior staff.

STEP 4: ANALYZE RESULTS

**Step 4:
ANALYZE
RESULTS**

- **Analyze the report**
Participants in a performance benchmarking project need to conduct their own analysis of the results.
- **Examine Overview**
Analyze in detail both individual performance indicators as well as overview. Internal information and criteria may assist.

Output of step 4:

- Summary of the findings
- Charts, graphs, tables and other appropriate diagrams

**Step 5:
DETERMINE
FURTHER
ACTION**

STEP 5: RECOMMENDATIONS / IMPLEMENTATION

- **Primary Actions**
Once the analysis is completed, there are usually some obvious actions which can be acted upon immediately.
- **Improve Process**
Gaps may be identified in some areas where improvements to the process can be introduced. Improvements can often be implemented by consulting with the appropriate staff and considering their suggestions.
- **Follow-up Benchmarking**
Performance benchmarking is best done on a multi-year basis. Appropriate process benchmarking projects can be identified more easily after performance benchmarking.

Output of step 5:

- Final report on the benchmarking project, and recommendations,
- Presentation to management and senior staff,
- Implementation plan for applying the lessons learned.

CONCLUSIONS:

Benchmarking is an effective business tool that municipal governments can use to achieve improvements in services, reduce costs, and improve efficiency. Certain factors will determine if your benchmarking efforts are successful. Management must of course be absolutely clear on what it is you want to achieve before you begin the process. Achieving improvements may involve changing the way you currently carry out service delivery, administration, management processes or even changing your fundamental organizational culture. Such changes are not always easy to accomplish and will require a concerted effort and cooperative attitude at all levels in the organization. Sufficient funding needs to be allocated in order to carry out the required studies and implementation of the resulting recommendations.

Everyone in the organization needs to be realistic about what can be accomplished by the benchmarking process. This is a powerful tool for improvement, but it is not a magic wand and there are a number of obstacles that can derail the process. Try to avoid concentrating so much on the collection of data that you lose sight of the overall objectives.

Perhaps one of the most important things to emphasize is maintaining clear and ongoing communications between management and staff throughout the benchmarking process. As reported in the National Partnership for Reinventing Government's *Balancing Measures: Best Practices in*

Performance Management (c1999),

"Involving your employee in the planning process makes him or her a part of the team. Moreover, communication translates to respect for the individual employee—an especially important consideration to public sector employees. These people are dedicated to their jobs and believe very firmly in the service they offer..."

Do's and don'ts of benchmarking

DO	DON'T
• Ensure there is strong commitment and support from senior management. • Communicate and encourage feedback. • Select processes or services that are important to your customers. • Be clear about the improvements you expect, whether cost /efficiency or quality/implementation of good practice. • Use the data to identify where there is the best opportunity for improvement. • Ensure your benchmarking team and your staff have the skills, training and attitude required. • Be sure the process fits into the overall goals and business plans.	• Waste time on unimportant processes. • Undertake a project to just defend the status quo. • Lose focus. • Become overwhelmed in data and lose sight of the goals of the project. • Allow the cost of the activity to outweigh the benefits in performance or possible savings. • Underestimate the time and effort required to make real change possible.

Source: Audit Commission, Scotland

DEFINITIONS:

Activities: The functions or tasks that are involved in a process.

Benchmarking: The continuous, systematic process of measuring and assessing products, services and practices of recognized leaders in the field to determine the extent to which they might be adapted to achieve superior performance.

Benchmark: The term has its origins from geographic surveying, where it means to take a measurement from a reference point. In the benchmarking process it is an external point of reference by which the performance of an activity, function, operation, process or service can be measured.

Best Practices: Management practices and work processes that serve as goals for organizations striving for excellence. The search for best practices is an intrinsic part of benchmarking.

Controls: Internal controls include agreed upon procedures, standing orders, budget limitations, legislative restrictions etc.

Inputs: The materials or resources required to produce an output. Inputs are typically transformed or consumed during the process. Inputs include, staff time involved, but not the staff. Budget expenditures required to carry out the process, and the materials consumed during the process such as paper, ink, etc.

Outputs: The end result, either a product or service that is produced.

Outcome: An outcome is a higher level consequence of the activity, and reflect the intended results of actions. For example, improving the overall health status of the population is an outcome.

Performance Measure: A measure of how well a service is performing compared to it's objectives.

Process: A process is a set of activities that converts inputs (resources) to outputs (services). It is in essence the combination of people and equipment and the activities they go through to produce the service.

Process Map: A process map is a diagram that shows in some detail what an organization does, and how it delivers its services. A process map shows the key activities involved, the sequence of those activities, the inputs or resources required, and the outputs or services produced.

Resources: Resources are those things required to produce the outputs but are not consumed during the process. Resources can include people and equipment as well as the facilities. For example, a photocopier, a computer, a clerk and the municipal building are all resources

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APPENDIX A1:

PROCESS MAPPING

Process mapping is an essential part of the benchmarking procedure. In order to improve performance it is imperative that you understand the process in great detail. A process map is a diagram which shows in detail what an organization does and how it does it. Each key activity in the process is illustrated in the diagram in the sequence it is carried on.

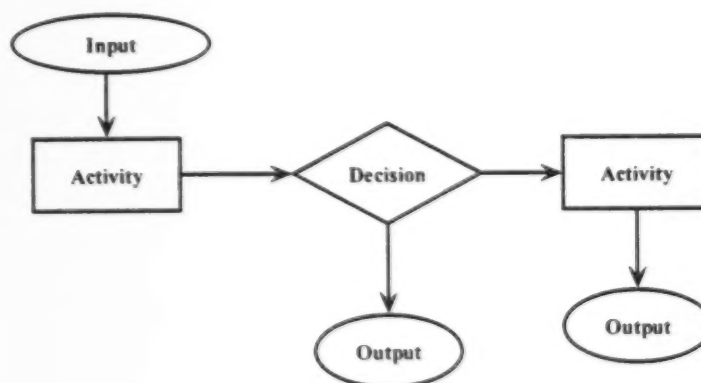
The two types of diagram that make up a process map are:

- **flow charts** - showing the sequence of activities in the process,
- **process map** which shows
 - the resources required,
 - the inputs,
 - the outputs,
 - the controls that regulate the activity, and,
 - the sequence of activities.

FLOWCHART

A flowchart is a simple tool that enables you to understand each step in a process or activity. It can show complexity and underline problem areas in a process, and can be used to illustrate any set of activities in an organization. It makes it possible to view a process as it actually is performed and compare it to the ideal, illustrating specifically where the process may be bogging down and may be improved.

Flowchart:



Source: *The Memory Jogger II: A Pocket Guide of Tools for Continuous Improvement and Effective Planning*. <http://goalqpc.com>

Ten Easy Steps to Building a Flowchart

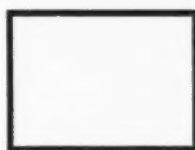
BUILDING A FLOWCHART:

1. Hold a brainstorming session to determine all the activities, the inputs, the outputs, the actions and decision points. Use flipcharts to list all the possible steps in the process and add or remove steps as required.
2. Clearly define the process: Have a clear picture of the process you are studying. Decide where you are going to begin the flowchart (input) and where you are going to end the flowchart (output). Arrange the items in the list you developed in Step 1, in the order they would flow.
3. Have the team come to a consensus on how detailed the flowchart is to be so that you may clearly understand the process and be able to identify areas of concern. Start with a fairly general view of the process and add complexity as it is required.
4. Draw the flowchart using the proper symbols, shapes etc. so that the finished flowchart will be easily understood.
5. Be consistent with each flowchart you create. Keep the level of detail consistent for each process.
6. Use labels to identify each process so that the flowchart can be easily understood. Be sure to include the organization name, the date, the names of the team members who developed the flowchart, and any other identifying information that may be required.
7. Check for completeness. Be sure that every path either takes you back or leads to the next step in the process. Don't leave any loops unclosed. Check also for continuity, use the correct symbols and shapes in every flowchart. (For example: Be sure there is only one output arrow coming from any activity box, if there is more than one, it should be a decision diamond.)
8. Validate! Have the person who is actually doing the process verify that the flowchart accurately describes the process, that no steps are left out and that the process is being followed exactly as the chart indicates. If the process is not as charted, then change the chart to reflect what is actually happening.
9. Examine the flowchart for obvious areas where improvements to the process can be made by either removing steps or changing the way the activity can be done.
10. Draw an ideal flowchart and compare the two to identify areas for improvement to the current process.

FLOWCHART SYMBOLS:



An **OVAL** is used to illustrate the inputs which start the process. The inputs could be information or actions. Oval is also used to show the results at the end of the process.



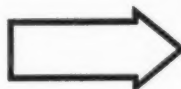
A **SQUARE** or **RECTANGLE** indicates a task or activity carried out during the process. Only one arrow should lead out of the square although there may be more than one arrow leading in. If there are more than one arrow leading out of the square, you should be using a diamond.



A **DIAMOND** indicates a point in the process where a decision needs to be made or a question is asked. It also indicates a change in direction.



A **CIRCLE** containing a letter or a number indicates that there is a break in the flowchart that the process is continued elsewhere on the page or on another page.

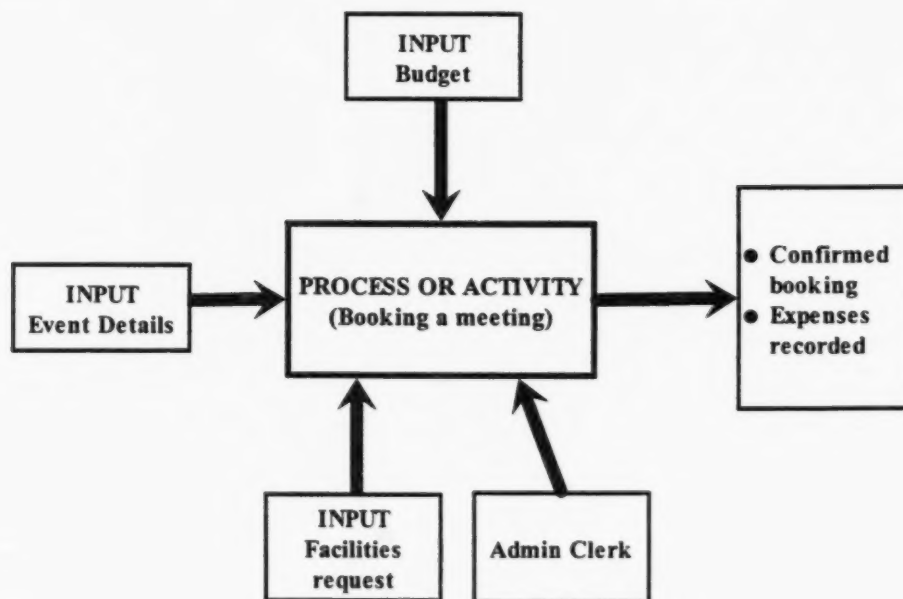


An **ARROW** indicates movement or transportation. Smaller arrows indicate the sequence and direction towards the next step in the process.

Use the Proper Symbols so Everyone Will Understand

Source: *The Memory Jogger: A pocket guide of tools for continuous improvement and effective planning*. GOAL/QPC 1994. [Http://goalqpc.com](http://goalqpc.com)

PROCESS DEFINITION CHART



Source: *The Map to Success: Using Process Mapping to Improve Performance*, Published by Audit Scotland May 2000. <http://www.accounts-commission.gov.uk/search/ndx/01m01ac.htm>